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Forest Service

**Northeastern Forest
Experiment Station**

Resource Bulletin NE-128

Forest Statistics for Ohio, 1991

Douglas M. Griffith
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Teresa L. Witzel
Eric H. Wharton

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Abstract

A statistical report on the fourth forest inventory of Ohio was conducted in 1990-91 by the Forest Inventory and Analysis Unit of the Northeastern Forest Experiment Station. The current inventory indicates that the state is 30 percent forested. It contains approximatley 10 billion cubic feet of growing-stock volume and 30 billion board feet of sawtimber volume on 7.6 million acres of timberland. The ratio of average annual net cubic-foot growth of growing-stock volume to removals on a statewide basis is 2.3 to 1.

Foreward

The fourth inventory of Ohio was under the overall direction of **John R. Peters**, Project Leader of the Forest Inventory and Analysis Unit. **Charles T. Scott** helped with the design of the inventory and sample selection. **David J. Alerich** supervised the data collection staff. **Teresa Witzel** supervised the field crews, and was responsible for the interpretation of the aerial photography. **Robert E. Ilgenfritz** was in charge of hiring and training the field staff. **Richard A. McCullough** supervised the digitizing process. **Marie Pennestri** was responsible for administrative and secretarial services. She was assisted by **Vickie Sharon** and **Lenora Middleton**. **Russ McAllister** supervised the increment core lab. Additional data processing assistance was provided by **Carol Alerich** and **Thomas Frieswyk**. **Sandra Richter** provided the graphics.

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Forest Statistics for Ohio, 1991

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March 1993

Dawn M. DiGiovanni no longer works for the Forest Service. **Teresa L. Witzel** currently works for the Allegheny National Forest at the Marienville Ranger District, Marienville, PA.

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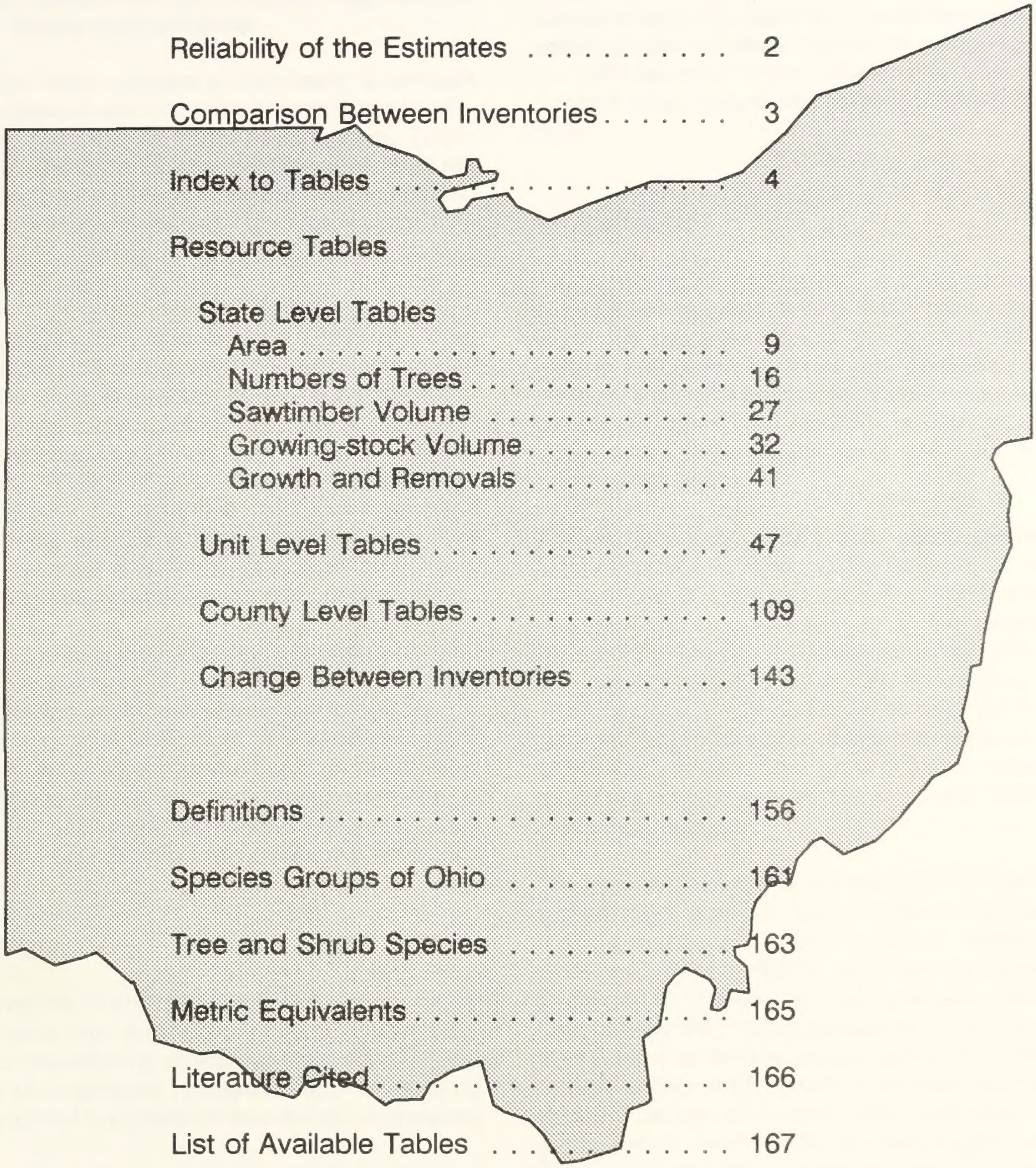

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INTRODUCTION

The amount, condition, availability, and use of renewable forest resources in Ohio are constantly changing. Forests continue to mature and harvesting activity increase. Current information about the forest, its owners, and its users is required for the effective allocation of goods and services potentially available from the State's forested lands.

The USDA Forest Service is mandated to conduct periodic forest inventories of all states to provide necessary up-to-date forest resource information. These inventories are conducted under the authority of the McSweeny-McNary Forest Research Act of 1928 and subsequent acts, including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978.

The Forest Inventory and Analysis (FIA) Unit of the Northeastern Forest Experiment Station is responsible for conducting inventories in 14 Northeastern States, which include Ohio. An initial inventory of Ohio's resources was conducted in 1952 (Hutchinson 1954). A second inventory was completed in 1968 (Kingsley 1970), and a third was finished in 1979 (Dennis and Birch 1981; Dennis 1983). This report presents the fourth such inventory of Ohio's forest resources, which was carried out in 1990-91.

Forest Inventory and Analysis is responsible for conducting the inventory of all public and private lands, developing the resource tables, and preparing reports such as this publication for a variety of users. The effort required to conduct such a large-scale inventory was greatly reduced through cooperation of the Ohio Department of Natural Resources, Division of Forestry, and the Wayne National Forest.

Planning

In planning this fourth inventory of Ohio, various sampling options were considered. After consulting with the Ohio Department of Natural Resources, it was decided to emphasize remeasurement – measuring as many plots from previous inventories as possible.

Three previous forest inventories of Ohio provided the ground plots that formed the basis for this remeasurement. Remeasured plots in previous inventories were selected based on a modified sampling with partial replacement design that provides for maximum remeasurement of previously established plots to reduce sampling variances and to provide more accurate county-level estimates.

The first inventory for 1952 examined 3,439 forest plots (all 1/5-acre fixed-radius plots). During the second inventory for 1968, 582 of the 1952 plots were selected and remeasured, supplemented by 3,988 new prism plots (clusters of 10 variable radius points covering approximately 1 acre). The third inventory for 1979 sampled 2,759 remeasured 1/5-acre and 10-point plots, supplemented by 2,128 new 10-point plots.

Procedures

The sampling procedure that is used generally involves a two-stage approach. Aerial photos are used to classify new photo points into appropriate stratifications for current land use and cubic-foot volume classes. The aerial photo interpretation also reclassifies ground plots from previous inventories into the same strata. New ground plots are selected from these photo points.

For this inventory, 77,087 new photo points were classified and 4,887 ground plot locations from previous inventories were reclassified on aerial photography. We expected to examine all the remeasured plots: 565 1/5-acre plots established in 1952, 2,194 10-point plots established in 1968 and remeasured in 1979, and 2,128 10-point plots established in 1979. However, field crews were able to measure only 4,807 of the 4,887 remeasured ground plots – some plots could not be remeasured due to access restrictions and other reasons.

The Wayne National Forest also was included in the sample base. However, measurement of these public lands precipitated special problems. Many of the plots established during the earliest inventories (1952 and 1968) were lost. And during the third inventory, no new plots were established. At that time, area and volume estimates were obtained from National Forest records and were incorporated into the estimates of private and other public land made by Forest Inventory and Analysis. For this fourth inventory, 38 new ground plots were established to adequately estimate area and volume on the Wayne National Forest. But because no remeasured plots are available, trend analysis in geographic areas that contain National Forest lands is difficult.

Special Studies

It is not the intention of this publication to analyze temporal data. A separate analytical report detailing changes in the State's forest resources is being prepared, as is a biomass report (Wharton and Griffith 1992). In addition, several associated studies related to forest resources have been carried out in conjunction with the inventory, most notably forest-land ownership and timber harvest studies.

Forest land ownership is an important component of the inventories conducted throughout the northeastern United States. A variety of sources is available for quantifying public ownership, so data were obtained from known information. The Ohio Department of Natural Resources identified all the forest lands owned by the State, counties, and municipalities. Federal ownership information was obtained from the Wayne National Forest. Information about private forest-land ownership was derived from the sample of ground plots.

Harvest information is another important part of our inventories. Changes in timber use make it necessary to evaluate the stability, direction, and future of the timber products industry in the State. Current data on the industrial timber harvest and non industrial timber uses such as fuelwood are needed to accurately determine the total timber harvest from Ohio forests. A report on Ohio's primary forest products industry is available (Widmann and Long 1991).

During this inventory, new procedures were incorporated that resulted in information not available during previous inventories. Increment cores from site-index trees were sent to the Forest Inventory and Analysis's Tree Ring Lab where ages were accurately determined to help calculate potential site productivity. Recreation opportunity potential was recorded, and tree-grade information was collected to assess timber quality.

Not all of the information collected is contained within this publication. Forest area, numbers of trees, biomass, timber volume, growth, and change between inventory statistics reported are only a summary of the information collected. Other information is available (see **List of Available Tables**), and additional summaries may be developed upon request.

RELIABILITY OF THE ESTIMATES

The data in this report were based on a carefully designed sample of forest conditions throughout Ohio. However, because the field crews did not measure every tree or every acre in the state, the data are estimates. The reliability of the estimating procedure can be judged by two important statistical measures: accuracy and precision. Among statisticians, accuracy refers to the success of estimating the true value; precision refers to the clustering of sample values about their own averages or to the variation among repeated samples. We are interested primarily in the accuracy of the inventory, but in most cases we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Preliminary tables are sent to other agencies and to outside experts familiar with the state of Ohio. If questions arise, the data are reviewed and reanalyzed to resolve the differences. Also, great care is taken to keep all sources of procedural error to a minimum by careful training of both field and office personnel, frequent inspection of field and office work, and application of the most reliable inventory methods.

Because of the care exercised in the inventory process, estimates of precision afford a reasonable measure of the inventory's adequacy. The precision of each estimate is described by its sampling error. Sampling errors are given with several tables in this report. The others are available upon request.

Briefly, here is an example of how the sampling error is used to indicate reliability. The estimate of timberland for Ohio is 7,620,300 acres. The associated sampling error is 1.2 percent, or 91,400 acres. This means that if there are no errors in the procedure and we repeated the inventory in the same way, the odds are 2 to 1 (66 percent probability) that the estimate would be between 7,528,900 and 7,711,700 acres (7,620,300 ± 91,400). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within ± 182,800 acres.

County estimates are less reliable. In Ohio, for example, while the sampling error for timberland at the state level is 1.2 percent, the sampling error for Adams County is 5.0 percent. In general, as the size of the estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

For many of the tables in this report, both the last column and last row are labeled "SE". These figures are the sampling errors of the column and row totals. The last sampling error given (SE) is for the table total (T). To calculate the approximate sampling error (se) for a table cell (X), use the following formula **(This formula is reliable only for estimating sampling errors of individual cells in AREA tables)**:

$$se = SE(T/X)^{1/2}$$

where:

T = estimated table total (sum over all cells in table)
SE = sampling error of T
X = estimate for a table cell
se = approximate sampling error of X, in percent

Any estimate with a sampling error of 50 percent or more is not significantly different from zero, and those estimates with errors between 25 and 50 percent are suspect. Therefore, any estimates that have errors exceeding 25 percent should be used with caution.

COMPARISON BETWEEN INVENTORIES

To evaluate the condition of the forest resource, it is useful to compare the current estimates with those from the previous inventory. However, as a result of our ongoing efforts to improve the efficiency of the inventory, we have made several changes in procedures and definitions since 1979. These procedural changes make it inappropriate to directly compare some of the current estimates with those published by Dennis and Birch (1981) and Dennis (1983). Users should use caution when comparing the data in this report to previous reports.

Changes in methods and definitions are as follows:

1. New height and volume equations were developed for both growing stock and sawtimber (Scott 1979, 1981). These equations are derived by nonlinear regression techniques; in 1979, linear regression was used. The nonlinear method is used because it yields estimates with smaller errors between predicted and actual values.

2. Stand size is a classification of the forest land based on the size of the trees that dominate an area. Our stand-size classes are seedling and sapling, poletimber, sawtimber, and nonstocked. In the 1979 inventory, only growing-stock trees were considered in determining stand size. The current procedure considers uses all live trees to estimate stand size classes. Because of this change, a direct comparison to the 1979 report is not possible.

3. One of the ways that forest areas and volumes are reported is by forest type. The way forest type is determined has been modified. In 1979, plots on which red maple made up the plurality of stocking were put into the oak-gum-red maple forest type group. In 1992, such plots were examined more closely and according to their moisture class and other species present, were placed in either the red maple-northern hardwoods type, the red maple-central hardwoods type, or the elm-ash-red maple group.

ADDITIONAL INFORMATION

For additional information or special summaries of data, contact:

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AREA

Forest-land area in Ohio has changed dramatically since 1787 when the Northwest Ordinance dispersed public domain of Ohio lands. At that time, 95 percent of the land area was forested. Currently, Ohio is 30 percent forested, but that change has not been a straight-line decline from the time of early settlement until now. The current proportion actually represents an increase in the forest-land base since 1940 when forest land bottomed at 12 percent (Diller 1944).

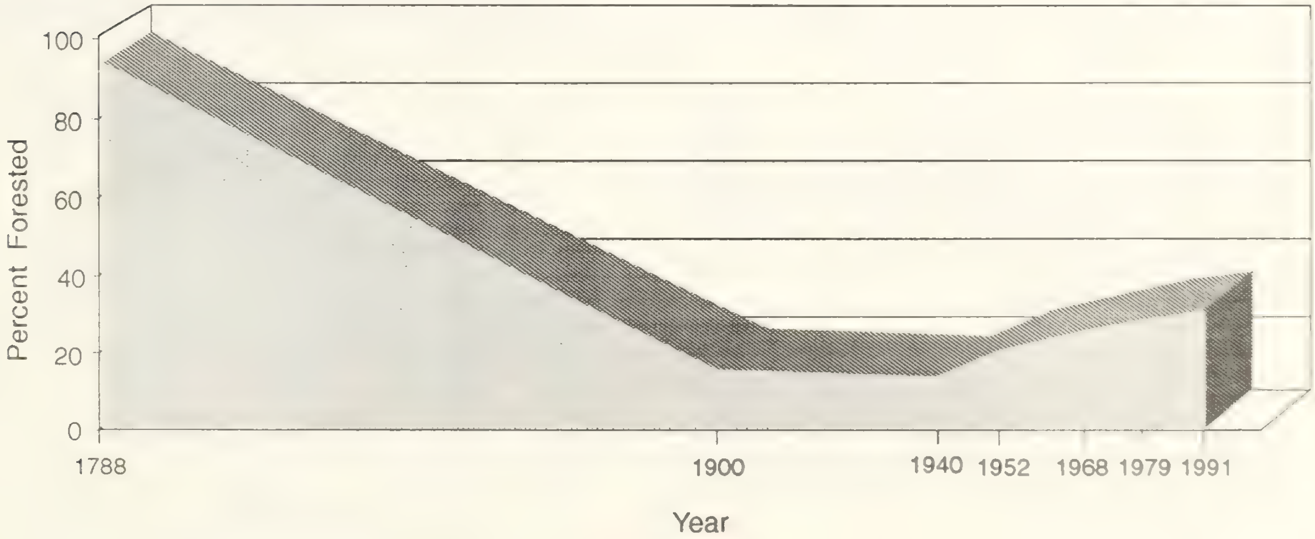
Since that time, forest land has increased steadily. Birch and Wharton (1982) highlighted the reasons for these increases. Due to the changing nature of argiculture in the State, pasture land has been lost to development, and much has reverted to forest land. The high cost of removing trees has led developers of urban and suburban areas to use cropland first. As a result, the lands in farms have declined steadily while forest land has increased. Timberland is the most common forest land cover.

Timberland is the classification of forest land that this survey was designed to estimate. Until the 1979 survey, timberland was called commercial forest land, which differs from timberland in name only. The amount of commercial forest land in Ohio has increased steadily since the first inventory was conducted in 1952 (Hutchinson 1954). That report showed 5,396,000 acres of comercial forest land. The current report indicates that Ohio now has 7,620,300 acres in timberland, an increase of approximately 41 percent.

Changes in the timberland base differ within the State. In the three-unit Hill Country (South-central, Southeastern, East-central), timberland area increased by 46 percent. In the three-unit Glaciated Region (Northeastern, Southwestern, Northwestern), the change in the timberland base was less, a 34-percent rise.

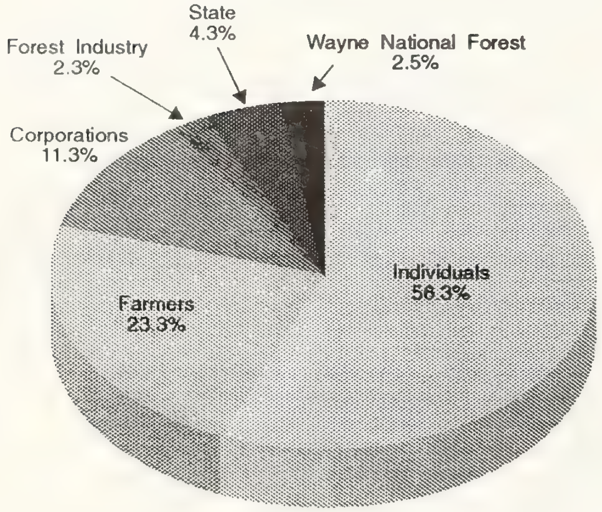
The remaining 297,200 acres of forest land is divided into four classes. Urban timberland, defined as timberland except for proximity to urban locations, accounts for 145,000 acres. Reserved forest land is next with 139,900 acres, followed by Christmas tree plantations with 9,800 acres, and unproductive forest land with 2,500 acres.

PERCENT OF FOREST LAND IN OHIO



Private ownership accounts for 93 percent of the timberland. A further breakdown of the private category reveals that private non-industrial individuals own 56.3 percent, farmers own 23.3 percent, corporations own 11.3 percent, and forest industry owns the remaining 2.3 percent of the timberland acres. The 7 percent of public ownership is divided between the State with 4.3 percent and the Wayne National Forest with 2.5 percent.

PERCENT OF TIMBERLAND AREA BY OWNERSHIP



A majority of the timberland area is now in sawtimber stands (53 percent). Seedling and sapling stands make up 24 percent of the area, and poletimber stands the remaining 23 percent. These breakdowns are fairly consistent in both the Hill Country and the Glaciated Region.

There were 43 forest types measured during the current inventory; of those, 6 types accounted for approximately 70 percent of timberland. Mixed central hardwoods accounted for 34.9 percent, followed by sugar maple/beech/yellow birch, 9.0 percent; mixed northern hardwoods, 7.7 percent; white oak/ red oak/hickory, 7.6 percent; black ash/ American elm/red maple, 5.6 percent; and black cherry, 4.8 percent.

PERCENT OF TIMBERLAND AREA BY FOREST TYPES

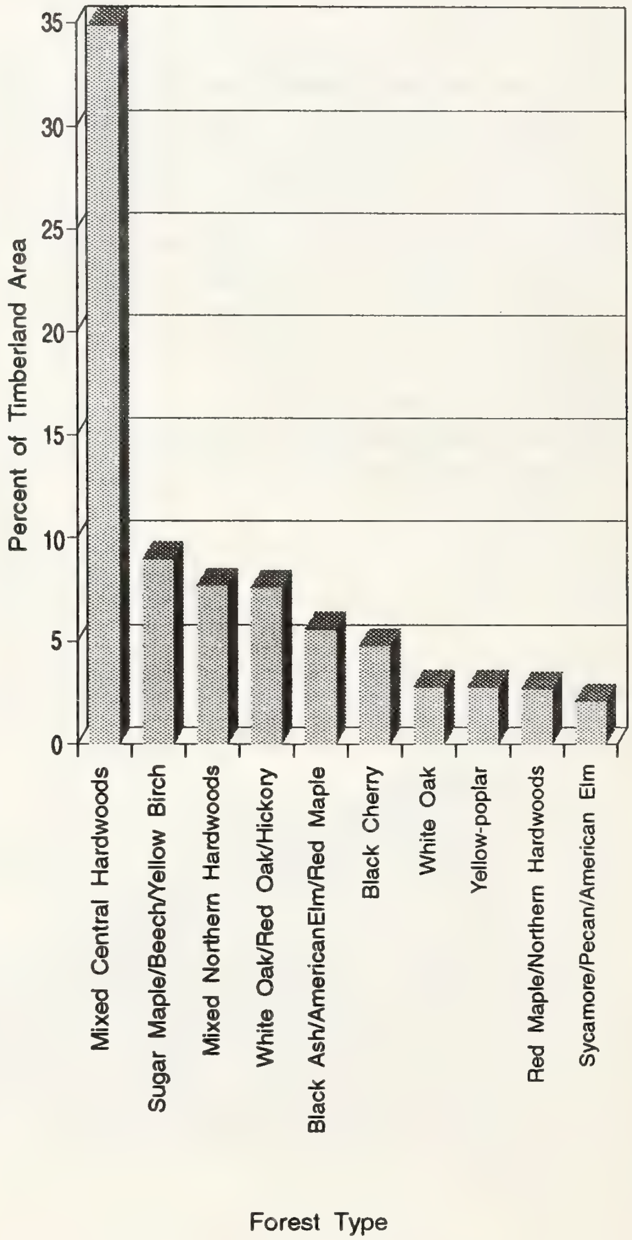


Table 1. Land area by land class, Ohio, 1991[a]

(In thousands of acres)

Land class	Area	
	Thousand acres	Percent
Timberland	7,567.4	28.9
Noncommercial forest land		
Productive reserved	139.9	.5
Urban	144.7	.6
Other[b]	12.1	.0
Total forest	7,864.1	30.0
Nonforest land		
Cropland[c]	10,978.4	41.9
Pasture[d]	1,668.0	6.4
Other	5,699.2	21.7
Total nonforest	18,345.6	70.0
Total land area[e]	26,209.7	100.0

[a] Rows and columns in all tables may not sum due to rounding.

[b] Includes unproductive forest land and Christmas tree plantations.

[c] Includes harvested cropland and other cropland. Source: 1987 Census of Agriculture.

[d] Includes cropland used only for pasture or grazing, and pasture and rangeland other than cropland and wooded pasture. Source: 1987 Census of Agriculture.

[e] Source: 1991 United States Department of Commerce, Bureau of Census.

Table 2. Area of timberland by forest type, forest-type group, and stand-size class, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	10.6	4.4	10.9	.0	25.9	42.4
White pine	37.9	7.0	16.1	.0	61.0	29.1
Hemlock	2.5	.0	.0	.0	2.5	100.0
Scotch pine	.0	10.7	3.5	.0	14.2	59.4
White/red pine group	51.0	22.2	30.5	.0	103.6	21.7
White spruce	.0	.0	5.8	.0	5.8	100.0
Spruce/fir group	.0	.0	5.8	.0	5.8	100.0
Shortleaf pine	4.3	.0	.0	.0	4.3	100.0
Virginia pine	29.4	17.1	16.6	.0	63.1	25.4
Eastern redcedar	2.8	8.4	6.6	.0	17.8	42.5
Pitch pine	3.5	.0	.0	.0	3.5	100.0
Loblolly/shortleaf group	40.1	25.5	23.2	.0	88.7	20.7
Wh. pine/no.red oak/wh. ash	20.4	10.9	4.2	.0	35.4	40.6
Eastern redcedar/hardwood	2.4	3.4	3.8	.0	9.6	58.6
Shortleaf pine/oak	.0	.0	5.1	.0	5.1	100.0
Virginia pine/oak	24.0	11.3	5.0	.0	40.3	32.0
Other oak/pine	17.8	.0	3.5	.0	21.3	52.2
Oak/pine group	64.5	25.6	21.6	.0	111.7	21.0
Post, black, or bear oak	55.0	11.9	3.1	.0	70.0	26.4
Chestnut oak	65.6	2.5	8.4	.0	76.5	24.4
White oak/red oak/hickory	352.4	135.4	86.5	.0	574.3	9.7
White oak	142.9	34.1	38.4	.0	215.5	15.7
Northern red oak	48.9	3.5	15.8	.0	68.2	26.4
Y-poplar/wh. oak/no.red oak	110.8	13.4	18.4	.0	142.5	19.8
Black locust	33.5	1.8	63.0	4.7	102.9	22.3
Black walnut	8.6	2.1	13.1	.0	23.8	40.5
Yellow-poplar	97.5	67.9	46.1	.0	211.5	15.4
Hawthorn/reverting field	.0	10.7	75.3	.0	86.0	23.9
Scarlet oak	19.8	.0	10.1	.0	29.9	43.7
Sassafras/persimmon	5.6	8.2	19.7	.0	33.5	33.7
Red maple/central hardwood	74.3	26.5	31.0	.0	131.8	20.5
Mixed central hardwoods	1,467.5	664.4	507.1	.0	2,639.1	3.8
Oak/hickory group	2,482.5	982.3	935.9	4.7	4,405.4	2.4

Table 2. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Sweetbay/swamp tupelo/red mple	.0	.0	2.1	.0	2.1	100.0
Oak/gum/cypress group	.0	.0	2.1	.0	2.1	100.0
Black ash/Amer. elm/red maple	178.6	102.0	141.7	.0	422.3	11.8
Red maple(lowland)	.0	8.2	3.9	.0	12.1	53.0
Red maple(upland)	25.4	10.8	35.1	.0	71.2	28.6
River birch/sycamore	10.3	8.3	11.5	.0	30.1	33.6
Cottonwood	40.9	6.9	16.5	.0	64.3	33.3
Willow	24.7	3.6	25.8	.0	54.1	35.1
Sycamore/pecan/American elm	101.3	25.1	29.8	.0	156.2	20.3
American elm/green ash	40.8	5.6	.0	.0	46.4	34.5
Elm/ash/red maple group	421.9	170.5	264.3	.0	856.7	8.0
Sugar maple/beech/yellow birch	467.4	83.9	132.1	.0	683.4	8.6
Black Cherry	157.1	101.2	103.3	.0	361.5	12.3
Red maple/northern hardwoods	76.2	86.2	43.0	.0	205.4	16.3
Pin cherry/reverting field	.0	2.9	83.6	.0	86.6	25.1
Mixed northern hardwoods	249.7	204.1	129.9	.0	583.7	9.1
Northern hardwoods group	950.4	478.3	491.9	.0	1,920.6	4.7
Aspen	.0	36.5	36.3	.0	72.8	25.0
Aspen/birch group	.0	36.5	36.3	.0	72.8	25.0
All forest types	4,010.4	1,740.8	1,811.6	4.7	7,567.4	1.2
SE	2.6	5.0	4.8	100.0	1.2	

Table 3. Area of timberland by forest-type group and ownership class, Ohio, 1991

(In thousands of acres)

Forest-type group	Ownership class: National Forest	Ownership class: Other public	Ownership class: Forest industry	Ownership class: Other private	All classes	SE
White/red pine	.0	21.1	2.5	80.0	103.6	21.7
Spruce/fir	.0	.0	.0	5.8	5.8	100.0
Loblolly/shortleaf	4.2	2.8	6.4	75.3	88.7	20.7
Oak/pine	.0	3.9	6.0	101.8	111.7	21.0
Oak/hickory	157.4	211.6	140.8	3,895.7	4,405.4	2.4
Oak/gum/cypress	.0	.0	.0	2.1	2.1	100.0
Elm/ash/red maple	19.5	27.1	7.2	802.9	856.7	8.0
Northern hardwoods	3.2	54.8	13.0	1,849.6	1,920.6	4.7
Aspen/birch	3.5	4.3	.0	65.0	72.8	25.0
Total, all groups	187.8	325.6	175.8	6,878.2	7,567.4	1.2
SE	17.6	11.7	16.8	1.5	1.2	

Table 4. Area of timberland by stand-size class and ownership class, Ohio, 1991

(In thousands of acres)

Stand-size class	Ownership class: National Forest	Ownership class: Other public	Ownership class: Forest industry	Ownership class: Other private	All classes	SE
Sawtimber	128.3	241.7	64.4	3,575.9	4,010.4	2.6
Poletimber	44.2	41.8	77.5	1,577.3	1,740.8	5.0
Sapling and seedling	15.2	42.1	33.9	1,720.3	1,811.6	4.8
Nonstocked	.0	.0	.0	4.7	4.7	100.0
Total, all classes	187.8	325.6	175.8	6,878.2	7,567.4	1.2
SE	17.6	11.7	16.8	1.5	1.2	

Table 5. Area of timberland by ownership class and stocking class of growing-stock trees, Ohio, 1991

(In thousands of acres)

Ownership class	Stocking class: Nonstocked	Stocking class: Poorly stocked	Stocking class: Moderately stocked	Stocking class: Fully stocked	Stocking class: Over-stocked	All classes	SE
National Forest	.0	15.2	61.6	45.7	65.2	187.8	17.6
Other public	.0	14.3	38.7	131.9	140.7	325.6	11.7
Forest industry	.0	21.2	47.7	43.1	63.8	175.8	16.8
Other private	36.5	573.0	1,773.5	2,465.5	2,029.9	6,878.2	1.5
All classes	36.5	623.7	1,921.4	2,686.3	2,299.5	7,567.4	1.2
SE	38.7	8.9	4.7	3.8	4.2	1.2	

Table 6. Area of timberland by stand-size class, forest-type group, and basal-area class, Ohio, 1991

(In thousands of acres)

Forest-type group	Basal area class (square feet per acre)					All classes	SE
	0-49	50-99	100-149	150-199	200+		
Sawtimber:							
White/red pine	.0	15.4	12.8	22.8	.0	51.0	29.3
Loblolly/shortleaf	.0	5.6	30.5	4.0	.0	40.1	29.8
Oak/pine	2.4	12.9	42.0	7.2	.0	64.5	29.5
Oak/hickory	56.7	802.0	1,454.8	150.1	18.9	2,482.5	3.8
Elm/ash/red maple	15.5	178.9	179.6	47.9	.0	421.9	12.3
Northern hardwoods	14.9	408.3	431.8	92.1	3.3	950.4	7.2
All type groups	89.6	1,423.0	2,151.4	324.2	22.2	4,010.4	2.6
Poletimber:							
White/red pine	.0	11.7	3.4	7.0	.0	22.2	51.1
Loblolly/shortleaf	3.1	5.6	16.7	.0	.0	25.5	42.9
Oak/pine	5.7	15.9	3.9	.0	.0	25.6	39.7
Oak/hickory	82.2	582.9	304.8	12.3	.0	982.3	7.0
Elm/ash/red maple	19.7	101.9	39.1	9.8	.0	170.5	18.1
Northern hardwoods	29.4	245.2	203.6	.0	.0	478.3	10.2
Aspen/birch	4.4	17.8	14.3	.0	.0	36.5	36.1
All type groups	144.6	981.1	586.0	29.1	.0	1,740.8	5.0
Seedling/sapling:							
White/red pine	12.6	15.4	2.5	.0	.0	30.5	41.1
Spruce/fir	5.8	.0	.0	.0	.0	5.8	100.0
Loblolly/shortleaf	8.3	14.8	.0	.0	.0	23.2	41.1
Oak/pine	8.9	12.7	.0	.0	.0	21.6	45.2
Oak/hickory	453.3	449.7	33.0	.0	.0	935.9	6.9
Oak/gum/cypress	2.1	.0	.0	.0	.0	2.1	100.0
Elm/ash/red maple	158.6	96.4	9.4	.0	.0	264.3	14.3
Northern hardwoods	271.4	206.1	14.4	.0	.0	491.9	10.2
Aspen/birch	8.0	23.8	4.5	.0	.0	36.3	34.6
All type groups	928.9	818.9	63.8	.0	.0	1,811.6	4.8
Nonstocked:							
Oak/hickory	4.7	.0	.0	.0	.0	4.7	100.0
All type groups	4.7	.0	.0	.0	.0	4.7	100.0
All classes	1,167.7	3,223.0	2,801.2	353.3	22.2	7,567.4	1.2
SE	6.4	3.3	3.6	12.1	46.1	1.2	

NUMBER OF TREES

In the 40 years since the first inventory of Ohio's forest resources, many changes have occurred in the technical approach, data processing, and how information is tabulated. During each inventory, efforts were made not only to improve and refine the estimates, but also to provide more and varied information. Consequently, new ways of estimating area and volume have evolved. Through all the change, though, one element has remained constant— calculating number of trees. Normally used little to analyze the resource in the past the number-of-trees statistic now is considered beneficial. Because of its uniform nature, this statistic provides one of the best means for tracking trends between inventories.

For example, the current estimate of Ohio's timberland base shows that there are approximately 113 growing-stock trees per acre (trees greater than 5.0 inches in diameter at breast height d.b.h.). During the last inventory in 1979, we estimated that there were approximately 92 trees per acre—a 22-percent increase. This represents a long-term trend since the earliest inventory conducted by the Northeastern Forest Experiment Station in 1968 showed only 67 trees per acre of timberland.

The most reasonable explanation for the recent increase is a rise in stocking levels within the State. Each diameter class showed a gain in the number of trees on an average acre in Ohio. As in recent inventories, the smallest diameter class contained the most trees per acre.

The numbers-of-trees statistic also can be used to accurately detail the composition of forests in Ohio. The overwhelming majority of trees is in the red maple species group—12 percent. So approximately one out of every eight trees measured in Ohio was in the red maple group (see **Species Groups of Ohio** for a list of the species that form the species groups).

NUMBER OF GROWING-STOCK TREES PER ACRE

SPECIES GROUP	1979	1991
Red Maple	7.7	13.5
Elm	6.7	10.5
Hickory	9.7	9.8
Sugar Maple	6.7	9.7
White Ash	7.3	8.7
Black Cherry	5.0	7.9
Select White Oak	7.8	7.3
Yellow-poplar	4.8	6.7
Other Red Oaks	5.0	4.7
Select Red Oaks	3.4	3.7

Wildlife habitat also can be identified from the number of tree stems and the number of shrub stems. Particularly important are the number of trees with nesting cavities and most common browse species.

NUMBER OF GROWING-STOCK TREES BY DIAMETER CLASS, 1979 and 1991

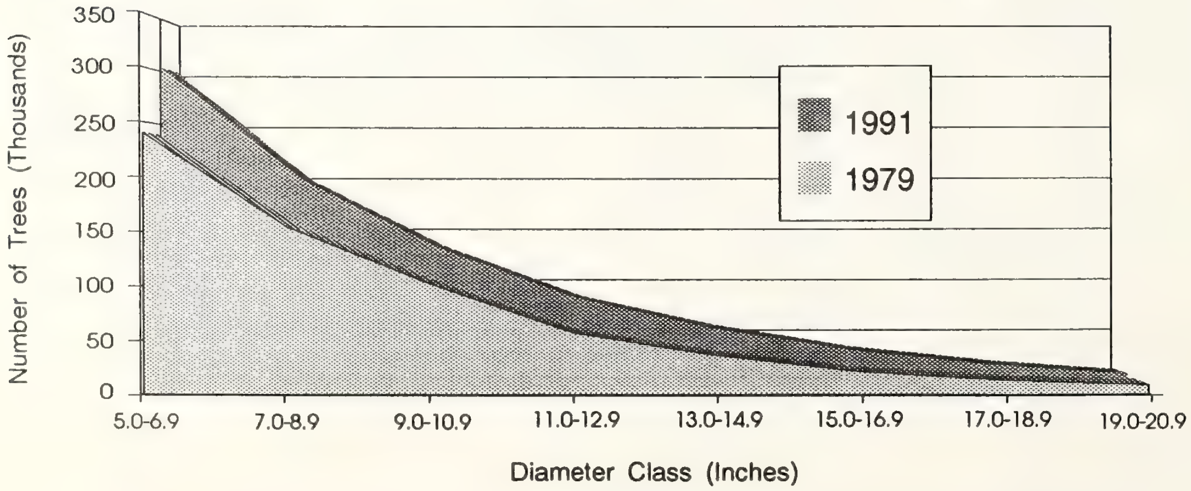


Table 7. Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class, Ohio, 1991

(In thousands of trees)

Species	Tree class								All classes	SE
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
Eastern redcedar	11	5,785	5,795	497	0	6,292	21	217	6,531	24.7
Red pine	0	5,148	5,148	179	69	5,397	81	157	5,634	37.8
White pine	281	13,332	13,613	260	44	13,918	255	365	14,538	21.0
Virginia pine	13	13,054	13,067	208	0	13,275	489	1,721	15,486	18.3
Other softwoods	18	9,942	9,960	138	0	10,098	713	1,439	12,250	20.0
Total softwoods	323	47,261	47,584	1,283	113	48,980	1,559	3,900	54,439	10.9
Red maple	132	101,961	102,094	4,440	1,556	108,089	751	2,390	111,230	4.8
Sugar maple	463	72,866	73,330	1,881	1,240	76,451	373	1,313	78,137	5.3
Hickory	591	73,216	73,807	890	321	75,018	1,516	2,658	79,193	5.3
Beech	22	20,768	20,790	706	839	22,335	183	975	23,493	10.0
White ash	669	65,445	66,115	2,941	750	69,805	3,271	3,137	76,213	5.4
Black walnut	274	17,799	18,073	583	282	18,939	739	874	20,552	7.4
Yellow-poplar	1,903	49,019	50,921	607	316	51,845	664	3,121	55,630	7.1
Sycamore	133	7,876	8,009	29	23	8,060	23	286	8,369	10.9
Aspen	86	23,743	23,829	253	6	24,089	1,345	3,267	28,700	9.4
Black cherry	185	59,385	59,570	4,559	699	64,828	765	6,224	71,817	5.7
Select white oaks	1,638	53,539	55,177	742	366	56,285	709	3,145	60,140	6.3
Select red oaks	1,199	26,986	28,186	437	117	28,740	458	1,282	30,480	6.5
Other white oaks	397	19,288	19,685	198	178	20,062	179	1,572	21,813	10.1
Other red oaks	706	35,045	35,751	186	77	36,015	464	2,716	39,195	6.6
Black locust	0	15,962	15,962	4,603	1,700	22,265	1,095	11,338	34,698	9.8
Elm	119	79,163	79,282	4,108	797	84,187	2,881	12,325	99,393	5.8
Other commercial hardwoods	192	52,810	53,002	4,581	587	58,170	849	3,324	62,344	5.5
Other noncommercial hardwoods	46	22,071	22,117	46,537	3,727	72,382	3,386	13,933	89,700	5.6
Total hardwoods	8,757	796,945	805,702	78,283	13,581	897,566	19,653	73,878	991,098	1.7
Total, all species	9,081	844,205	853,286	79,566	13,695	946,547	21,212	77,778	1,045,537	1.7
SE	7.3	1.8	1.8	5.1	6.7	1.7	6.7	4.1	1.7	

Table 8. Number of growing-stock trees on timberland by species and diameter class, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	52,983	29,322	10,867	3,768	1,435	328	139	77
Red pine	0	95	1,046	2,039	1,792	627	436	169
White pine	3,053	7,206	5,015	4,710	3,039	2,653	1,515	1,157
Virginia pine	40,024	9,483	5,491	3,985	4,027	2,827	1,370	591
Other softwoods	20,160	6,815	3,881	4,666	2,461	1,541	568	362
Total softwoods	116,219	52,922	26,301	19,169	12,755	7,976	4,028	2,355
Red Maple	2,380,005	300,411	84,566	42,400	25,000	14,233	8,538	5,188
Sugar maple	3,792,227	306,167	77,372	29,375	17,310	9,359	6,599	4,225
Hickory	886,009	71,120	30,627	20,763	19,471	13,417	8,547	5,081
Beech	489,775	49,567	13,202	5,233	3,375	3,489	2,524	1,835
White ash	3,608,277	129,636	47,883	23,155	16,016	10,414	6,416	4,160
Black walnut	45,664	7,185	3,711	5,352	4,201	2,952	2,434	1,759
Yellow-poplar	384,772	63,997	22,101	14,748	10,209	8,538	6,048	4,491
Sycamore	29,362	1,700	4,397	1,207	951	1,429	1,219	964
Aspen	90,680	23,201	7,980	7,171	6,023	4,944	2,907	1,426
Black cherry	4,032,996	157,257	54,360	22,802	13,334	9,110	5,830	4,293
Select white oaks	400,585	28,677	15,488	11,899	10,485	10,036	6,636	5,415
Select red oaks	452,637	41,120	15,845	6,375	4,970	4,615	3,800	2,241
Other white oaks	269,821	20,412	5,886	4,100	3,340	3,228	2,849	1,975
Other red oaks	442,082	44,606	15,531	7,624	7,526	4,953	4,429	3,494
Black locust	168,543	43,266	20,293	6,159	3,657	2,987	1,460	850
Elm	2,288,988	278,132	81,442	38,302	20,941	10,564	4,620	2,569
Other hardwoods	6,732,359	557,396	133,061	35,755	17,159	9,520	5,472	3,210
Total hardwoods	26,494,784	2,123,852	633,746	282,421	183,968	123,789	80,328	53,177
Total, all species	26,611,003	2,176,773	660,047	301,591	196,723	131,765	84,356	55,533
SE	2.7	3.0	3.1	2.6	2.5	2.6	2.5	2.8

Table 8. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	40	0	7	0	0	5,795	98,968	20.1
Red pine	59	25	0	0	0	5,148	6,290	45.0
White pine	393	129	13	4	0	13,613	28,886	20.5
Virginia pine	181	85	0	0	0	13,067	68,065	25.3
Other softwoods	269	69	18	5	0	9,960	40,816	21.6
Total softwoods	944	309	39	9	0	47,584	243,026	12.2
Red Maple	2,818	1,703	904	1,097	213	102,094	2,867,075	5.7
Sugar maple	2,888	1,423	915	1,144	92	73,330	4,249,097	6.3
Hickory	3,336	1,940	590	619	42	73,807	1,061,563	4.9
Beech	978	877	700	1,508	271	20,790	573,335	12.8
White ash	2,517	1,518	819	1,009	90	66,115	3,851,911	5.1
Black walnut	648	454	215	76	0	18,091	74,651	14.6
Yellow-poplar	2,783	1,812	1,112	1,099	87	50,927	521,798	9.2
Sycamore	789	477	389	401	182	8,009	43,468	29.4
Aspen	692	237	134	187	107	23,829	145,690	16.1
Black cherry	1,831	1,196	567	574	33	59,570	4,304,183	7.1
Select white oaks	4,003	2,742	1,682	1,782	499	55,177	499,928	8.9
Select red oaks	2,176	1,433	863	1,392	320	28,186	537,788	8.4
Other white oaks	1,874	1,065	623	603	27	19,685	315,805	16.3
Other red oaks	3,039	1,754	1,075	1,566	292	35,751	537,971	10.7
Black locust	394	226	121	103	4	15,962	248,065	18.1
Elm	1,246	517	201	249	73	79,282	2,727,844	5.5
Other hardwoods	1,730	1,051	400	705	118	75,120	7,497,936	4.0
Total hardwoods	33,744	20,425	11,311	14,113	2,449	805,725	30,058,107	2.5
Total, all species	34,688	20,734	11,349	14,122	2,449	853,310	30,301,133	2.5
SE	3.4	4.1	4.7	4.5	9.9	1.8	2.5	

Table 9. Number of live trees on timberland by species and diameter class, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	52,983	29,322	10,867	4,153	1,488	375	151	77
Red pine	0	95	1,046	2,201	1,817	689	436	169
White pine	3,053	7,206	5,015	5,003	3,039	2,653	1,515	1,157
Virginia pine	40,024	9,483	5,491	4,134	4,027	2,867	1,370	591
Other softwoods	20,160	6,815	3,881	4,666	2,468	1,644	568	389
Total softwoods	116,219	52,922	26,301	20,157	12,840	8,229	4,040	2,383
Red maple	2,380,005	300,411	84,566	45,071	25,993	14,674	9,475	5,548
Sugar maple	3,792,227	306,167	77,372	30,472	18,033	9,757	6,964	4,441
Hickory	886,009	71,120	30,627	21,166	19,751	13,592	8,669	5,268
Beech	489,775	49,567	13,202	5,426	3,785	3,544	2,732	1,958
White ash	3,608,277	129,636	47,883	24,666	16,638	10,908	7,085	4,335
Black walnut	45,664	7,185	3,711	5,381	4,575	3,088	2,580	1,812
Yellow-poplar	384,772	63,997	22,101	15,158	10,415	8,689	6,085	4,564
Sycamore	29,362	1,700	4,397	1,207	951	1,429	1,237	971
Aspen	90,680	23,201	7,980	7,378	6,048	4,944	2,907	1,439
Black cherry	4,032,996	157,257	54,360	25,681	14,351	9,519	6,257	4,538
Select white oaks	400,585	28,677	15,488	12,100	10,665	10,173	6,818	5,572
Select red oaks	452,637	41,120	15,845	6,451	5,153	4,695	3,800	2,304
Other white oaks	269,821	20,412	5,886	4,153	3,441	3,316	2,867	2,032
Other red oaks	442,082	44,606	15,531	7,650	7,549	4,953	4,496	3,517
Black locust	168,543	43,266	20,293	9,028	5,309	3,733	1,983	1,080
Elm	2,288,988	278,132	81,442	40,421	22,372	11,060	5,112	2,737
Other commercial hardwoods	4,936,478	491,217	109,390	27,225	12,575	7,266	4,622	2,781
Other noncommercial hardwoods	6,334,506	554,937	103,747	42,623	16,121	6,923	3,422	1,661
Total hardwoods	31,033,409	2,612,610	713,823	331,260	203,727	132,261	87,111	56,562
Total, all species	31,149,628	2,665,532	740,124	351,417	216,567	140,490	91,151	58,945
SE	2.5	2.7	2.9	2.5	2.5	2.5	2.5	2.7

Table 9. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	40	0	7	0	0	6,292	99,465	20.0
Red pine	59	25	0	0	0	5,397	6,539	43.7
White pine	393	129	13	16	0	13,918	29,191	20.4
Virginia pine	181	85	20	0	0	13,275	68,273	25.2
Other softwoods	269	69	18	5	0	10,098	40,954	21.6
Total softwoods	944	309	58	21	0	48,980	244,422	12.2
Red maple	2,902	1,791	1,029	1,311	296	108,089	2,873,071	5.7
Sugar maple	2,980	1,474	943	1,239	148	76,451	4,252,218	6.3
Hickory	3,346	1,963	598	623	42	75,018	1,062,774	4.9
Beech	1,057	1,004	748	1,712	370	22,335	574,880	12.8
White ash	2,572	1,535	882	1,073	111	69,805	3,855,602	5.1
Black walnut	720	459	226	107	8	18,957	75,516	14.4
Yellow-poplar	2,793	1,817	1,112	1,126	92	51,851	522,721	9.2
Sycamore	789	477	397	411	190	8,060	43,519	29.4
Aspen	692	237	134	187	121	24,089	145,950	16.1
Black cherry	1,973	1,259	604	611	36	64,828	4,309,441	7.1
Select white oaks	4,015	2,809	1,716	1,820	595	56,285	501,035	8.9
Select red oaks	2,195	1,433	863	1,487	359	28,740	538,342	8.4
Other white oaks	1,888	1,085	635	611	33	20,062	316,181	16.3
Other red oaks	3,039	1,786	1,092	1,617	316	36,015	538,234	10.7
Black locust	523	334	131	135	9	22,265	254,368	17.7
Elm	1,288	597	229	297	73	84,187	2,732,749	5.5
Other commercial hardwoods	1,481	874	411	713	222	58,170	5,595,256	4.3
Other noncommercial hardwoods	718	542	144	174	54	72,382	7,065,573	4.1
Total hardwoods	34,972	21,475	11,894	15,256	3,073	897,590	35,257,432	2.3
Total, all species	35,916	21,783	11,952	15,277	3,073	946,571	35,501,854	2.3
SE	3.3	4.0	4.5	4.5	8.8	1.7	2.3	

Table 10. Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter class, Ohio, 1991

(In thousands of trees)

Species	Intact top				Broken top					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total	Total all trees	SE
Eastern redcedar	208	0	0	208	51	0	0	51	259	63.9
Red pine	164	0	10	174	100	0	0	100	274	52.1
White pine	506	11	0	517	312	23	0	335	852	55.6
Virginia pine	1,094	92	19	1,206	1,175	74	23	1,273	2,478	27.5
Other softwoods	1,425	165	4	1,595	817	104	5	926	2,521	27.8
Total softwoods	3,399	268	34	3,700	2,455	201	29	2,684	6,385	18.3
Red maple	1,267	44	33	1,344	1,261	117	137	1,515	2,859	18.5
Sugar maple	376	35	29	440	985	161	167	1,314	1,754	21.7
Hickory	2,029	298	142	2,469	1,784	404	227	2,414	4,884	14.9
Beech	61	34	35	131	266	174	421	861	992	20.5
White ash	4,312	104	134	4,550	3,953	337	156	4,446	8,996	13.5
Black walnut	715	75	65	854	998	75	74	1,147	2,001	28.0
Yellow-poplar	1,269	54	75	1,398	1,921	417	136	2,474	3,872	18.6
Sycamore	258	0	0	258	21	0	30	51	309	56.8
Aspen	1,678	148	1	1,828	2,699	343	74	3,117	4,945	20.0
Black cherry	1,745	181	73	2,000	4,722	484	152	5,358	7,358	12.5
Select white oaks	1,223	172	90	1,485	2,368	104	205	2,677	4,162	14.7
Select red oaks	710	153	96	959	723	137	112	971	1,930	23.0
Other white oaks	303	208	131	642	908	179	35	1,122	1,765	22.5
Other red oaks	1,257	319	116	1,693	1,215	283	354	1,852	3,545	15.2
Black locust	6,671	396	202	7,270	4,816	516	271	5,603	12,873	12.0
Elm	10,168	1,064	260	11,491	5,052	890	236	6,178	17,670	11.7
Other commercial hardwoods	1,923	166	133	2,222	1,531	189	135	1,855	4,077	16.6
Other noncommercial hardwoods	7,281	350	80	7,711	10,276	542	79	10,898	18,609	10.2
Total hardwoods	43,249	3,802	1,697	48,747	45,500	5,352	3,002	53,854	102,601	4.1
Total, all species	46,647	4,070	1,730	52,448	47,955	5,552	3,030	56,538	108,986	4.0
SE	5.2	8.4	10.3	4.8	5.1	7.6	8.5	4.5	4.0	

Table 11. Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition class, Ohio, 1991

(In thousands of trees)

Species	Live trees					Dead trees				
	No cull	Intact live top	Broken top	Dead top	Total live	Intact top	Broken top	Total dead	Total all trees	SE
Eastern redcedar	86	12	0	0	98	21	0	21	119	44.4
Red pine	0	69	0	0	69	35	63	99	168	71.8
White pine	28	0	0	0	28	0	74	74	102	66.5
Virginia pine	14	0	0	0	14	167	321	488	503	34.0
Other softwoods	219	27	0	0	246	136	55	191	438	29.8
Total softwoods	347	109	0	0	455	359	514	874	1,329	19.7
Red maple	9,497	2,240	537	19	12,293	513	781	1,294	13,587	8.3
Sugar maple	7,531	1,535	233	85	9,385	38	737	776	10,161	9.3
Hickory	4,936	188	0	9	5,133	458	705	1,163	6,296	10.5
Beech	5,886	877	106	49	6,919	133	770	903	7,822	17.4
White ash	2,998	589	65	24	3,675	370	667	1,037	4,713	10.8
Black walnut	1,945	243	97	20	2,305	189	353	543	2,847	13.9
Yellow-poplar	3,132	315	0	23	3,470	162	692	855	4,325	12.0
Sycamore	953	27	8	9	997	50	8	58	1,055	17.2
Aspen	793	111	0	0	903	324	1,244	1,569	2,472	17.3
Black cherry	4,714	868	41	61	5,684	845	3,506	4,352	10,036	10.0
Select white oaks	1,602	256	223	0	2,081	176	1,263	1,438	3,519	14.7
Select red oaks	1,667	153	6	68	1,894	280	326	606	2,500	14.2
Other white oaks	1,233	191	0	23	1,447	288	635	923	2,370	15.4
Other red oaks	1,791	41	0	0	1,831	529	848	1,377	3,208	12.3
Black locust	3,616	2,115	486	413	6,630	2,995	3,152	6,148	12,778	10.9
Elm	1,721	211	0	0	1,932	809	1,248	2,057	3,989	12.2
Other commercial hardwoods	5,244	1,514	310	0	7,068	576	816	1,392	8,460	9.7
Other noncommercial hardwoods	9,998	5,167	812	325	16,303	3,226	6,251	9,477	25,780	8.7
Total hardwoods	69,256	16,642	2,924	1,130	89,951	11,962	24,005	35,967	125,918	3.3
Total, all species	69,603	16,750	2,924	1,130	90,407	12,321	24,519	36,841	127,247	3.3
SE	3.9	6.5	14.1	24.7	3.5	8.5	6.5	5.4	3.3	

Table 12. Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Ohio, 1991

(In thousands of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Common juniper	820	0	0	0	820	100.0
Eastern redcedar	19,090	23,670	50,412	0	93,173	21.1
Spruce species	0	472	2,054	0	2,527	71.0
Shortleaf pine	0	0	610	0	610	100.0
Red pine	0	845	297	0	1,142	76.4
Pitch pine	3,755	0	3,268	0	7,023	56.3
Eastern white pine	6,898	1,181	7,194	0	15,273	25.3
Scotch pine	0	331	624	0	954	70.1
Virginia pine	7,131	16,347	31,521	0	54,998	30.1
Eastern hemlock	15,295	3,606	839	0	19,741	34.9
Boxelder	184,831	46,317	108,559	0	339,707	17.6
Black maple	119,333	14,215	12,040	0	145,588	28.8
Striped maple	144	0	168	0	312	70.9
Red maple	1,369,490	579,761	776,864	0	2,726,115	5.9
Silver maple	11,431	6,885	20,551	0	38,867	41.2
Sugar maple	2,972,510	601,256	456,413	0	4,030,179	6.4
Buckeye species	31,261	6,740	1,916	0	39,917	24.2
Ohio buckeye	51,589	32,366	10,630	0	94,586	16.0
Yellow buckeye	24,909	16,828	820	0	42,558	27.4
Ailanthus species	41,705	64,392	13,813	0	119,910	23.9
Alder species	77,231	130,825	17,137	0	225,193	54.8
Hercules club	21,880	3,031	3,525	0	28,436	46.9
Serviceberry	128,058	29,339	30,235	0	187,632	23.6
Chokeberry species	488	0	0	0	488	100.0
Azalea species	0	958	0	0	958	100.0
Common pawpaw	378,024	92,032	76,802	0	546,858	14.7
Barberry	126,946	39,835	2,332	0	169,114	26.6
Yellow birch	2,299	5,338	37,310	0	44,947	54.0
Sweet birch	20,921	4,254	2,510	0	27,685	46.6
River birch	5,513	412	324	0	6,249	88.5
Gray birch	0	552	0	0	552	100.0
American hornbeam	475,546	172,447	138,558	0	786,551	9.2
Hickory species	493,716	169,512	184,107	0	847,335	5.7
Bitternut hickory	65,519	26,435	14,427	0	106,381	17.1
Pignut hickory	9,827	1,831	1,700	0	13,359	35.8
Pecan	1,659	0	0	0	1,659	100.0
Shagbark hickory	7,552	5,854	3,046	0	16,452	30.8
Mockernut hickory	1,547	507	516	0	2,569	63.9
American chestnut	104	0	0	0	104	100.0
Catalpa	0	0	652	0	652	100.0
Hackberry	172,976	19,125	22,515	0	214,617	19.5
Eastern redbud	153,048	95,907	135,957	0	384,913	11.7
Flowering dogwood	2,108,840	1,023,312	722,146	0	3,854,298	5.4
Alternate-leaved dogwood	5,081	6,710	1,651	0	13,443	59.2
Silky dogwood	49,785	104,309	369,937	0	524,030	29.4
Round-leaved dogwood	0	6,305	0	0	6,305	79.6
Panicled dogwood	382,524	80,835	467,551	0	930,911	22.6
Red-osier dogwood	83,107	111,449	429,259	0	623,815	33.2
Hawthorn species	330,055	242,181	694,177	0	1,266,413	9.1
American hazelnut	40,820	39,606	50,489	0	130,915	28.0
Beaked hazelnut	3,044	3,652	2,233	0	8,930	53.2
Common persimmon	4,919	2,044	4,716	0	11,680	30.3
Leatherwood	2,737	0	0	0	2,737	100.0
American beech	403,269	74,116	75,160	0	552,544	13.1

Table 12. continued

(In thousands of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Autumn olive	12,306	2,469	11,469	0	26,244	55.6
White ash	1,981,077	841,188	963,532	0	3,785,796	5.2
Black ash	5,040	2,925	1,412	0	9,378	36.5
Green ash	39,669	28,968	23,050	0	91,687	27.6
Blue ash	89,030	8,615	272	0	97,917	31.8
Huckleberry	11,154	8,959	20,430	0	40,543	41.4
Honeylocust	3,948	3,060	31,816	0	38,824	46.6
Kentucky coffeetree	374	0	0	0	374	100.0
Witch-hazel	203,847	151,830	102,668	0	458,345	18.2
American holly	5,932	0	0	0	5,932	95.4
Winterberry holly	30,471	0	0	0	30,471	100.0
Butternut	9,136	2,249	111	0	11,496	79.6
Black walnut	25,566	12,481	18,513	0	56,560	18.8
Mountain laurel	43,525	1,640	6,433	0	51,597	43.8
Common spicebush	2,101,589	600,525	402,615	0	3,104,729	7.9
Sweetgum	1,100	855	577	0	2,533	46.5
Yellow-poplar	200,508	73,311	197,051	0	470,871	10.1
Bush honeysuckle	519,311	369,556	506,641	0	1,395,508	18.5
Osage-orange	8,490	21,969	2,894	0	33,353	51.7
Magnolia	2,759	0	0	0	2,759	81.1
Cucumbertree	3,966	3,540	856	0	8,361	49.4
Apple species	25,695	37,872	56,553	0	120,119	17.9
Mulberry species	2,671	0	0	0	2,671	75.8
White mulberry	2,224	2,486	6,203	0	10,912	53.1
Red mulberry	1,360	0	2,862	0	4,223	46.4
Black tupelo	279,931	135,010	222,218	0	637,159	10.8
Eastern hophornbeam	317,000	121,758	90,267	0	529,025	10.3
Sourwood	92,672	42,297	44,238	0	179,208	20.2
American sycamore	17,356	1,995	16,107	0	35,459	35.8
Eastern cottonwood	7,726	269	4,148	0	12,143	40.0
Bigtooth aspen	22,951	11,016	35,970	0	69,937	23.4
Quaking aspen	2,150	7,340	30,291	0	39,781	35.3
Cherry species	44,045	28,801	14,568	0	87,415	40.8
Pin cherry	8,212	43,717	10,155	0	62,085	66.2
Black cherry	2,364,845	967,765	912,003	0	4,244,612	7.2
Chokecherry	84,515	14,077	19,159	0	117,750	40.0
White oak	217,868	85,144	74,297	0	377,309	10.9
Swamp white oak	15,837	8,439	1,883	0	26,160	33.6
Scarlet oak	43,659	14,918	14,504	0	73,081	24.1
Northern pin oak	0	902	0	0	902	100.0
Southern red oak	0	0	7,627	0	7,627	100.0
Scrub, bear oak	0	0	2,385	0	2,385	100.0
Shingle oak	5,580	5,940	3,362	0	14,882	31.3
Bur oak	1,121	0	586	0	1,707	54.9
Chinkapin oak	12,110	18,005	9,458	0	39,573	29.6
Pin oak	6,681	6,925	46,483	0	60,088	50.2
Chestnut oak	168,640	35,258	72,912	0	276,810	18.0
Northern red oak	278,863	91,241	139,498	0	509,603	8.8
Post oak	6,272	0	13,037	0	19,309	53.3
Black oak	179,613	57,565	108,460	0	345,639	11.6
Buckthorn species	58,330	16,659	38,712	0	113,701	47.8
Winged sumac	3,077	21,934	44,677	0	69,688	37.4
Smooth sumac	29,564	34,948	156,576	0	221,089	27.3
Staghorn sumac	9,980	25,851	145,592	0	181,423	21.2
Poison sumac	1,728	0	0	0	1,728	100.0

Table 12. continued

(In thousands of stems)

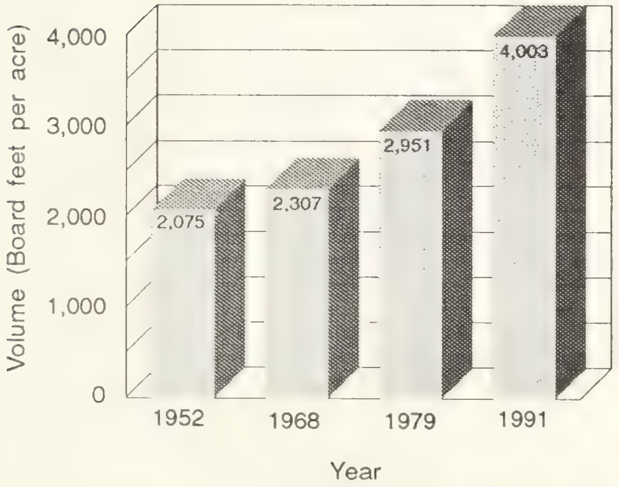
Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Currant species	203,778	14,609	8,217	0	226,605	39.7
Black locust	56,775	35,065	140,262	0	232,102	19.2
Rose species	2,514,033	1,353,795	1,932,118	0	5,799,946	6.1
Rubus species	4,175,280	2,028,078	4,792,055	0	10,995,412	5.7
Willow species	147,747	27,153	28,972	0	203,873	52.4
Black willow	3,061	863	23,390	0	27,314	56.3
American elderberry	244,311	76,089	61,819	0	382,219	18.3
Red-berried alder	2,569	3,191	2,063	0	7,823	55.4
Sassafras	913,874	450,824	608,447	0	1,973,145	7.1
American mountain ash	0	0	6,186	0	6,186	100.0
Spirea species	5,681	36,091	245,517	0	287,289	35.2
Sweetleaf	0	0	2,735	0	2,735	100.0
Basswood species	2,875	0	0	0	2,875	100.0
American basswood	123,355	32,165	21,005	0	176,525	17.2
Elm species	80,334	15,233	27,422	0	122,989	30.8
American elm	773,102	414,333	419,070	0	1,606,504	7.2
Slippery elm	554,976	167,766	193,145	0	915,887	9.8
Rock elm	955	422	1,806	0	3,183	63.0
American bladdernut	54,142	12,689	7,396	0	74,226	30.1
Blueberry	471,413	152,260	159,783	0	783,456	14.1
Viburnum species	133,446	109,653	162,236	0	405,335	21.4
Maple-leaved viburnum	636,618	124,403	83,188	0	844,209	13.6
Hobblebush viburnum	4,237	0	0	0	4,237	100.0
Wild raisin	28,830	40,447	3,438	0	72,715	61.9
Arrowwood	158,787	423,584	476,992	0	1,059,364	19.7
Nannyberry	45,627	12,697	16,145	0	74,469	29.2
Blackhaw	284,392	98,613	80,796	0	463,801	30.6
Common prickly ash	18,621	3,715	0	0	22,335	74.2
Unknown deciduous shrub	252,981	129,526	204,007	0	586,515	15.8
Unknown evergreen shrub	8,718	0	15,391	0	24,109	62.0
Unknown tree	75,983	21,965	16,704	0	114,652	27.7
All species	32,004,808	13,665,433	19,363,007	0	65,033,248	2.2
SE	3.8	6.1	6.3	.0	2.2	

SAWTIMBER VOLUME

Ohio forests continue to mature. As they do, sawtimber volumes per acre will increase. The 1952 survey reported that sawtimber volume averaged 2,075 board feet per acre of timberland. By 1991, average sawtimber volume climbed to more than 4,000 board feet per acre. There are two main reasons for this tremendous rise. As stated earlier, stocking levels in all diameters classes rose since 1952. Also, sawtimber growth has continued to outpace removals on an annual basis.

While sawtimber volume has increased throughout the entire State, there have been significant regional differences in the degree to which these increases have occurred. The Glaciated Region had the largest average with 4,300 board feet per acre, while the Hill Country had approximately 3,900 board feet per acre. Though the Hill Country is more heavily forested, it is also more heavily harvested. This, combined with the small tracts of land that are not harvested regularly in the Glaciated Region, results in a higher average sawtimber volume per acre in this region.

SAWTIMBER VOLUME PER ACRE



There also has been a shift in the species groups that make up the largest percentages of volume. While the select white oaks group continues to have the largest amount of volume, the percentage of overall volume has decreased. The order of the other groups remained basically unchanged except for red maple which jumped from tenth to fourth in sawtimber volume. It fell short of being ranked third by fewer than 25 million board feet.

SAWTIMBER VOLUME PER ACRE BY SPECIES GROUPS

SPECIES GROUP	1979	1991
Select White Oaks	445	454
Yellow-poplar	268	400
Hickory	245	328
Red Maple	127	325
Other Red Oaks	330	314
Sugar Maple	191	295
White Ash	189	285
Select Red Oaks	227	273
Black Cherry	97	231
Beech	131	215

Larger diameter trees are important for three reasons. First, from an aesthetic viewpoint, larger trees are more stately, and appeal to both owners and users of Ohio timberlands. Second, the larger the tree, the higher the potential lumber yield. But most important, large trees are especially valuable because quality tends to increases as the size of the tree increases. We found that nearly two-thirds of the total sawtimber volume in Ohio – 62 percent – was in larger trees (trees larger than 15.0 inches d.b.h.). Forty-three percent of this larger tree volume is in tree grades 1 and 2.

Quality volume is defined as trees larger than 15.0 inches at breast height with a tree grade of 1 or 2. Yellow-poplar had the largest amount of total quality volume. Other leading species groups in terms of quality volume are select white oaks, select red oaks, other red oaks, and white ash.

The yellow-poplar and select red oaks groups each had approximately 64 percent of their total large sawtimber volume classified as quality volume. Other leading species in percentage of large sawtimber that was quality volume are white ash, other white oaks, and select white oak.

While there are more red maple trees than any other species (see **Numbers of Trees**), this group ranked 11th in total large sawtimber volume, and only 18 percent of the group was quality volume.

Table 13. Net volume of sawtimber trees on timberland by species and diameter class, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	6.0	4.7	4.5	2.4	.0	1.2	.0	.0	18.9	39.0
Red pine	20.3	31.5	17.7	9.2	4.8	.0	.0	.0	83.5	42.3
White pine	101.4	111.1	127.1	63.5	24.2	3.6	1.4	.0	432.4	25.0
Virginia pine	100.8	86.1	50.0	20.2	13.3	.0	.0	.0	270.5	20.5
Other softwoods	56.4	33.8	31.1	32.8	10.2	3.0	1.1	.0	168.3	20.7
Total softwoods	284.9	267.2	230.5	128.2	52.5	7.8	2.5	.0	973.6	13.6
Red Maple	.0	541.6	507.1	366.4	315.5	207.9	376.7	142.8	2,458.1	8.3
Sugar maple	.0	436.7	440.3	410.4	272.7	223.4	387.1	60.9	2,231.6	7.4
Hickory	.0	584.1	553.9	529.4	404.3	151.2	227.8	29.1	2,479.7	6.5
Beech	.0	180.2	192.5	136.3	170.3	176.8	569.6	204.6	1,630.2	10.2
White ash	.0	450.2	428.5	362.1	306.4	200.7	357.0	55.1	2,159.9	7.5
Black walnut	.0	143.7	155.3	82.8	65.7	43.9	19.4	.0	510.8	10.0
Yellow-poplar	.0	486.4	581.6	536.8	453.4	363.5	535.2	72.8	3,029.8	7.7
Sycamore	.0	79.2	105.8	121.4	99.7	92.7	155.3	137.2	791.3	13.1
Aspen	.0	230.1	176.5	119.2	53.5	36.0	73.2	87.3	775.8	10.7
Black cherry	.0	429.2	444.3	262.2	238.8	146.4	204.8	25.5	1,751.1	8.0
Select white oaks	.0	424.2	568.3	582.7	526.1	393.1	606.5	331.7	3,432.6	7.7
Select red oaks	.0	238.7	220.4	301.7	266.7	208.7	556.8	274.2	2,067.1	8.1
Other white oaks	.0	165.0	173.8	224.4	175.0	135.8	165.7	13.0	1,052.7	12.8
Other red oaks	.0	280.1	347.1	430.4	332.4	258.0	536.9	193.4	2,378.2	7.9
Black locust	.0	74.0	66.9	43.2	30.4	19.0	22.8	.4	256.8	17.1
Elm	.0	251.1	229.0	150.9	77.2	45.1	81.3	45.0	879.6	8.7
Other hardwoods	.0	318.7	296.2	227.5	184.2	97.0	237.7	68.3	1,429.6	8.0
Total hardwoods	.0	5,313.4	5,487.4	4,888.0	3,972.3	2,799.2	5,113.7	1,741.1	29,315.1	2.5
Total, all species	284.9	5,580.6	5,717.9	5,016.2	4,024.8	2,807.0	5,116.2	1,741.1	30,288.7	2.4
SE	13.7	2.7	3.0	3.6	4.4	4.9	5.0	11.1	2.4	

Table 14. Net volume of sawtimber trees on timberland by species, size class, and tree grade, Ohio, 1991

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
Eastern redcedar	.0	.0	.0	.0	3.7	3.7	6.6	.0	.0	.0	12.3	18.9
Red pine	1.8	1.7	10.6	.0	.0	14.0	1.8	8.4	73.3	.0	.0	83.5
White pine	10.0	52.4	27.4	.0	2.9	92.8	14.0	219.9	183.0	8.8	6.7	432.4
Virginia pine	2.4	.0	29.1	.0	2.0	33.5	5.0	14.4	244.0	.0	7.1	270.5
Other softwoods	11.6	6.2	15.7	.0	13.5	47.0	29.5	37.2	65.6	.0	36.1	168.3
Total softwoods	25.9	60.3	82.7	.0	22.1	191.0	56.9	279.9	565.9	8.8	62.2	973.6
Red Maple	52.2	196.5	453.2	273.9	433.6	1,409.3	52.2	239.5	989.9	631.4	545.1	2,458.1
Sugar maple	101.4	286.0	502.7	189.7	274.8	1,354.6	101.4	384.1	1,039.4	391.7	315.0	2,231.6
Hickory	144.6	417.5	462.5	165.4	151.6	1,341.7	144.6	550.7	1,225.9	368.3	190.1	2,479.7
Beech	4.5	99.0	361.7	448.7	343.5	1,257.5	4.5	102.6	492.3	648.1	382.7	1,630.2
White ash	360.6	354.0	344.6	47.0	175.0	1,281.2	360.6	485.3	953.7	126.0	234.3	2,159.9
Black walnut	39.3	60.9	62.6	12.2	36.9	211.8	39.3	100.7	286.9	31.5	52.3	510.8
Yellow-poplar	618.8	643.3	429.9	169.3	100.4	1,961.8	618.8	851.1	1,077.0	372.5	110.4	3,029.8
Sycamore	89.0	181.2	198.2	53.6	84.4	606.3	89.0	225.3	319.8	66.9	90.3	791.3
Aspen	38.6	142.4	117.3	45.1	25.8	369.3	38.6	157.6	339.0	204.5	36.1	775.8
Black cherry	98.8	205.4	251.8	79.2	242.4	877.6	98.8	287.1	795.9	211.1	358.2	1,751.1
Select white oaks	507.1	677.1	742.6	298.6	214.6	2,440.1	507.1	829.6	1,338.1	532.8	224.9	3,432.6
Select red oaks	482.1	553.4	398.5	56.7	117.3	1,608.0	482.1	636.1	701.5	116.2	131.2	2,067.1
Other white oaks	105.1	289.6	212.7	60.5	45.9	713.8	105.1	329.1	444.6	112.5	61.4	1,052.7
Other red oaks	319.1	468.6	492.6	345.9	124.8	1,751.0	319.1	516.5	848.3	555.1	139.3	2,378.2
Black locust	.0	4.9	20.6	29.5	60.9	115.9	.0	4.9	90.6	66.9	94.5	256.8
Elm	58.2	108.7	139.1	34.4	59.2	399.6	58.2	149.4	480.4	98.1	93.6	879.6
Other hardwoods	123.6	160.3	251.9	91.7	187.1	814.7	123.6	240.4	627.5	196.2	242.0	1,429.6
Total hardwoods	3,143.1	4,848.8	5,442.6	2,401.5	2,678.3	18,514.3	3,143.1	6,090.1	12,050.7	4,729.8	3,301.4	29,315.1
Total, all species	3,168.9	4,909.2	5,525.3	2,401.5	2,700.4	18,705.4	3,200.0	6,370.0	12,616.6	4,738.6	3,363.5	30,288.7

Table 15. Net volume of sawtimber trees on timberland by forest type and stand-size class, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	87.4	2.5	6.0	.0	95.9	56.7
White pine	257.0	13.1	32.2	.0	302.3	35.9
Hemlock	13.5	.0	.0	.0	13.5	100.0
Scotch pine	.0	8.7	.0	.0	8.7	70.7
White/red pine group	357.9	24.3	38.2	.0	420.4	28.8
White spruce	.0	.0	2.7	.0	2.7	100.0
Spruce/fir group	.0	.0	2.7	.0	2.7	100.0
Shortleaf pine	22.2	.0	.0	.0	22.2	100.0
Virginia pine	145.4	34.0	1.5	.0	180.9	32.9
Eastern redcedar	2.9	12.6	1.9	.0	17.3	63.4
Pitch pine	11.6	.0	.0	.0	11.6	100.0
Loblolly/shortleaf group	182.0	46.5	3.5	.0	232.0	28.1
Wh. pine/no.red oak/wh. ash	243.0	13.7	2.5	.0	259.2	57.9
Eastern redcedar/hardwood	5.1	3.1	.0	.0	8.2	72.9
Virginia pine/oak	76.9	2.6	2.4	.0	81.9	39.2
Other oak/pine	94.5	.0	5.1	.0	99.7	63.2
Oak/pine group	419.6	19.3	10.0	.0	449.0	37.0
Post, black, or bear oak	329.8	14.8	.0	.0	344.6	37.8
Chestnut oak	518.4	7.8	24.0	.0	550.3	28.5
White oak/red oak/hickory	2,422.3	310.3	119.1	.0	2,851.7	12.0
White oak	1,123.6	76.4	109.3	.0	1,309.3	22.2
Northern red oak	387.4	3.7	4.0	.0	395.1	33.5
Y-poplar/wh. oak/no.red oak	809.7	22.2	32.4	.0	864.4	26.0
Black locust	87.5	1.5	6.6	.0	95.6	40.3
Black walnut	32.2	.0	4.9	.0	37.1	65.9
Yellow-poplar	813.7	153.5	87.3	.0	1,054.5	20.7
Hawthorn/reverting field	.0	2.2	19.0	.0	21.3	55.2
Scarlet oak	136.8	.0	2.8	.0	139.5	65.4
Sassafras/persimmon	19.7	16.6	.0	.0	36.3	71.0
Red maple/central hardwood	447.3	65.8	25.1	.0	538.2	27.5
Mixed central hardwoods	9,108.1	1,227.8	570.3	.0	10,906.2	5.1
Oak/hickory group	16,236.6	1,902.6	1,004.9	.0	19,144.1	3.6

Table 15. continued

(In millions of board feet)

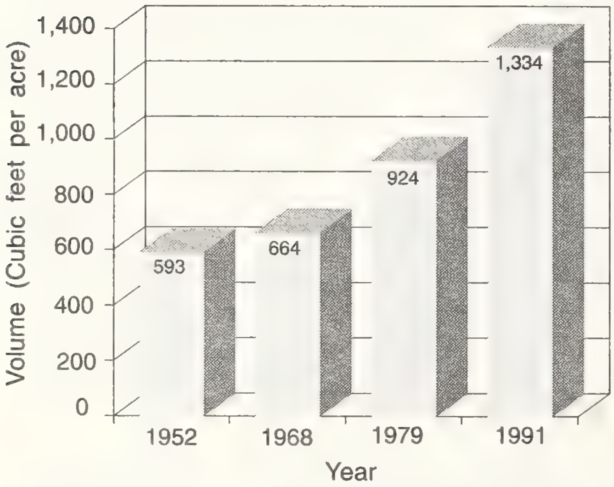
Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	1,108.5	125.5	67.6	.0	1,301.6	18.8
Red maple(lowland)	.0	6.9	.0	.0	6.9	86.9
Red maple(upland)	123.0	25.0	2.8	.0	150.7	46.6
River birch/sycamore	38.1	9.0	24.4	.0	71.5	38.0
Cottonwood	152.8	10.5	30.2	.0	193.5	46.8
Willow	124.7	5.6	3.1	.0	133.4	51.6
Sycamore/pecan/American elm	505.4	69.6	39.0	.0	614.1	22.3
American elm/green ash	150.4	6.6	.0	.0	157.0	40.2
Elm/ash/red maple group	2,202.9	258.6	167.1	.0	2,628.6	11.5
Sugar maple/beech/yellow birch	2,965.0	161.5	199.5	.0	3,326.0	10.2
Black Cherry	714.2	186.3	31.6	.0	932.1	16.3
Red maple/northern hardwoods	604.2	130.9	24.3	.0	759.4	26.0
Pin cherry/reverting field	.0	.0	1.8	.0	1.8	70.8
Mixed northern hardwoods	1,747.3	416.8	111.9	.0	2,276.0	13.2
Northern hardwoods group	6,030.7	895.5	369.0	.0	7,295.3	6.5
Aspen	.0	78.3	38.3	.0	116.6	36.1
Aspen/birch group	.0	78.3	38.3	.0	116.6	36.1
All forest types	25,429.7	3,225.2	1,633.7	.0	30,288.7	2.4
SE	3.2	6.3	8.5	.0	2.4	

GROWING-STOCK VOLUME

As with sawtimber volume, growing-stock volume has increased dramatically. Current estimates reveal that there are 1,334 cubic feet of growing-stock volume per acre of timberland. This represents a rise of approximately 750 cubic feet per acre since the 1952 inventory, or approximately 20 cubic feet per acre per year. Again, increased stocking levels and a positive annual growth to removals ratio help to explain this upward trend.

Slightly less than the state average, growing-stock volume in the Hill Country averaged 1,300 cubic feet per acre. At 1,392 cubic feet per acre, the Glaciated Region averaged slightly more than the State average.

GROWING-STOCK VOLUME PER ACRE



As mentioned previously, the Glaciated region contains many large sawtimber stands in fragmented blocks. This contributes significantly to higher sawtimber volumes per acre. But the region also has a history of agricultural land reverting to timberland. As croplands revert to forests, seedlings and small trees naturally predominate. As the trees top the 5-inch d.b.h. mark, they become ingrowth and add significantly to the growing-stock volume.

Red maple has become the dominate tree species in growing-stock volume. In 1979, the red maple species group ranked 8th in growing-stock volume. Currently it leads all other species. With the exception of the other red oaks (which fell from 3rd to 7th), other species groups remained fairly constant. Besides the red maple group, only black cherry more than doubled its growing-stock volume per acre. The other white oaks and black locust were the only groups to show a decline in per acre averages.

GROWING-STOCK VOLUME PER ACRE BY SPECIES GROUPS

SPECIES GROUPS	1979	1991
Red Maple	53	127
Select White Oaks	115	124
Hickory	87	119
Yellow-poplar	71	115
Sugar Maple	65	106
White Ash	67	101
Other Red Oaks	81	87
Black Cherry	41	86
Select Red Oaks	55	74
Elm	36	66

There were three species groups with more than two-thirds of their volume in trees whose diameter is less than 15.0 inches d.b.h. (red maple, hickory, and black cherry). The four oak species groups had less than half of their volume in those smaller trees, with the select red oaks reporting the least with 39 percent. The statewide estimate for growing-stock volume in the smaller trees is slightly less than 61 percent.

Species like red maple and black cherry have natural fast growth rates. These and similar pioneer species such as aspen, black locust, white ash, and yellow-poplar—all have a relatively high proportion of their volume in the smaller diameter classes. These trees will continue to mature but will not contribute as much to the larger volume classes because they tend to remain relatively small-size trees. Oaks and hickories, on the other hand, tend to have higher proportions of their volumes in the larger diameter classes. These species are also more heavily harvested.

Table 16. Net volume of growing-stock trees on timberland by species and diameter class, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	8.0	6.1	2.2	1.5	1.2	.6	.0	.3	.0	.0	19.9	27.2
Red pine	7.3	11.0	7.3	7.9	4.0	2.0	1.0	.0	.0	.0	40.4	33.5
White pine	13.7	19.7	30.3	27.5	28.5	13.1	5.0	.7	.3	.0	138.8	22.6
Virginia pine	12.2	25.0	30.2	22.3	12.5	4.9	3.1	.0	.0	.0	110.3	19.4
Other softwoods	12.7	13.6	16.5	8.8	7.4	7.5	2.4	.7	.2	.0	70.0	17.9
Total softwoods	54.0	75.4	86.5	68.0	53.7	28.1	11.5	1.8	.5	.0	379.4	11.5
Red Maple	101.0	143.4	148.6	143.2	124.0	87.5	69.3	45.0	75.6	26.7	964.3	6.2
Sugar maple	76.1	109.7	104.8	112.2	103.9	93.4	60.0	47.6	82.9	11.1	801.8	6.0
Hickory	52.6	128.7	157.4	151.6	129.5	115.5	83.8	31.4	45.0	5.0	900.6	5.2
Beech	11.4	21.8	38.6	44.3	45.5	31.4	36.4	37.0	113.0	38.6	417.9	9.5
White ash	59.5	96.5	116.3	112.4	100.5	84.7	67.4	43.7	74.6	10.9	766.5	5.8
Black walnut	13.2	20.9	29.1	36.0	36.4	18.0	15.4	10.0	4.2	.0	183.1	8.1
Yellow-poplar	40.0	70.3	113.4	121.6	130.8	113.5	92.4	72.0	99.8	13.0	866.9	6.8
Sycamore	3.4	6.1	16.5	20.7	23.9	25.7	20.6	19.0	30.7	26.2	192.8	11.8
Aspen	23.8	43.3	65.4	55.9	37.9	25.3	10.8	7.1	14.3	16.8	300.7	8.9
Black cherry	59.9	83.3	101.7	106.8	107.9	59.3	52.3	31.5	41.8	4.9	649.6	6.2
Select white oaks	29.6	60.6	107.8	107.2	128.8	125.1	110.7	82.3	121.0	62.8	935.9	6.9
Select red oaks	17.6	31.5	52.1	64.0	55.0	71.6	60.1	44.8	112.0	52.1	560.9	7.1
Other white oaks	10.0	18.4	32.6	42.8	43.7	53.2	39.8	29.1	35.9	2.8	308.4	11.0
Other red oaks	18.3	47.0	54.4	76.8	84.9	98.4	73.3	56.0	111.5	40.4	661.0	7.0
Black locust	12.2	17.4	25.6	19.2	16.2	10.5	6.4	4.1	5.1	.1	116.8	14.1
Elm	90.3	105.1	95.4	66.0	55.5	34.5	17.5	9.9	17.2	8.6	500.0	6.0
Other hardwoods	82.5	91.6	90.8	83.1	70.5	50.4	39.0	20.0	48.7	13.1	589.7	5.8
Total hardwoods	701.4	1,095.7	1,350.6	1,363.9	1,294.8	1,098.0	855.3	590.4	1,033.3	333.4	9,716.8	1.9
Total, all species	755.4	1,171.1	1,437.1	1,431.9	1,348.5	1,126.1	866.8	592.2	1,033.8	333.4	10,096.2	1.9
SE	2.8	2.6	2.7	2.6	2.9	3.6	4.3	4.8	4.9	10.7	1.9	

Table 17. Net volume of all trees on timberland by class of timber and species group, Ohio, 1991

(In millions of cubic feet)

Class of timber	Species group				All species	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	202.1	16.0	2,084.9	3,280.5	5,583.6	2.4
Upper stem portion	29.7	2.1	481.8	721.8	1,235.5	2.2
Total	231.9	18.1	2,566.7	4,002.4	6,819.1	2.3
Poletimber trees	109.1	20.3	1,502.0	1,645.7	3,277.2	2.1
Total growing stock	340.9	38.5	4,068.7	5,648.1	10,096.2	1.9
Rough trees:						
Sawtimber size	3.1	1.0	155.6	174.4	334.1	5.8
Poletimber size	1.4	.4	70.5	93.4	165.8	6.7
Total	4.5	1.3	226.2	267.9	499.9	5.7
Rotten trees:						
Sawtimber size	.0	.0	22.3	38.5	60.8	11.7
Poletimber size	.1	.0	5.2	6.1	11.4	13.8
Total	.1	.0	27.5	44.6	72.3	10.0
Salvable dead trees:						
Sawtimber size	3.5	.3	19.8	42.7	66.3	14.1
Poletimber size	3.4	.0	32.7	26.3	62.4	8.7
Total	6.9	.3	52.5	68.9	128.7	8.8
Total, all trees	352.5	40.1	4,375.0	6,029.5	10,797.1	1.8
SE	12.5	19.6	2.9	2.4	1.8	

Table 18. Net volume of all-live, growing-stock, and sawtimber trees on timberland by species group and ownership class, Ohio, 1991

Species group	Ownership class				All classes	SE
	National Forest	Other public	Forest industry	Other private		
All live:	(In millions of cubic feet)					
Softwoods	6.4	46.1	24.1	307.0	383.6	11.5
Hardwoods	300.4	546.6	210.6	9,061.4	10,119.0	1.9
Total, all groups	306.8	592.7	234.7	9,368.4	10,502.6	1.8
Growing-stock:	(In millions of cubic feet)					
Softwoods	6.4	46.0	24.1	302.9	379.4	11.5
Hardwoods	290.5	535.6	200.5	8,690.1	9,716.8	1.9
Total, all groups	296.9	581.6	224.6	8,993.0	10,096.2	1.9
Sawtimber:	(In millions of board feet)					
Softwoods	17.1	111.7	64.5	780.3	973.6	13.6
Hardwoods	895.8	1,823.7	588.3	26,007.3	29,315.1	2.5
Total, all groups	912.9	1,935.4	652.8	26,787.6	30,288.7	2.4
SE	22.2	14.1	21.9	2.8	2.4	

Table 19. Net volume of growing-stock trees on timberland by forest type and stand-size class, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	26.2	5.3	3.4	.0	34.9	48.9
White pine	90.9	16.5	12.5	.0	120.0	33.2
Hemlock	4.3	.0	.0	.0	4.3	100.0
Scotch pine	.0	13.5	2.0	.0	15.4	53.7
White/red pine group	121.5	35.3	17.8	.0	174.6	25.2
White spruce	.0	.0	.7	.0	.7	100.0
Spruce/fir group	.0	.0	.7	.0	.7	100.0
Shortleaf pine	8.3	.0	.0	.0	8.3	100.0
Virginia pine	54.8	23.7	2.7	.0	81.2	30.8
Eastern redcedar	1.1	8.8	1.3	.0	11.2	63.8
Pitch pine	5.6	.0	.0	.0	5.6	100.0
Loblolly/shortleaf group	69.8	32.5	4.0	.0	106.2	25.9
Wh. pine/no.red oak/wh. ash	62.3	10.0	3.6	.0	76.0	50.0
Eastern redcedar/hardwood	1.6	1.9	.2	.0	3.7	67.7
Shortleaf pine/oak	.0	.0	.1	.0	.1	100.0
Virginia pine/oak	28.5	5.0	4.6	.0	38.2	34.7
Other oak/pine	28.7	.0	1.8	.0	30.4	57.8
Oak/pine group	121.1	16.9	10.3	.0	148.4	29.7
Post, black, or bear oak	86.4	9.0	.0	.0	95.4	34.1
Chestnut oak	145.0	2.9	7.9	.0	155.9	26.9
White oak/red oak/hickory	677.9	187.9	50.8	.0	916.6	10.9
White oak	291.8	45.6	35.4	.0	372.8	19.3
Northern red oak	105.0	2.2	2.3	.0	109.5	31.4
Y-poplar/wh. oak/no.red oak	230.9	12.1	12.5	.0	255.4	23.6
Black locust	31.3	1.4	6.6	.0	39.4	36.6
Black walnut	9.4	.4	1.5	.0	11.3	62.7
Yellow-poplar	219.7	97.2	30.5	.0	347.4	18.0
Hawthorn/reverting field	.0	1.1	6.2	.0	7.3	43.5
Scarlet oak	36.6	.0	.8	.0	37.4	60.8
Sassafras/persimmon	9.9	8.6	1.3	.0	19.9	62.9
Red maple/central hardwood	133.5	43.2	14.8	.0	191.4	24.8
Mixed central hardwoods	2,662.6	685.7	254.5	.0	3,602.9	4.5
Oak/hickory group	4,640.0	1,097.4	425.1	.0	6,162.6	3.1

Table 19. continued

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Sweetbay/swamp tupelo/red mple	.0	.0	.1	.0	.1	100.0
Oak/gum/cypress group	.0	.0	.1	.0	.1	100.0
Black ash/Amer. elm/red maple	335.7	103.6	57.7	.0	496.9	15.6
Red maple(lowland)	.0	6.1	.1	.0	6.1	73.7
Red maple(upland)	43.0	16.3	5.5	.0	64.8	39.9
River birch/sycamore	11.7	8.9	10.1	.0	30.6	34.5
Cottonwood	41.9	6.3	12.4	.0	60.6	42.3
Willow	32.8	3.4	2.2	.0	38.4	46.8
Sycamore/pecan/American elm	142.4	31.5	14.1	.0	188.0	22.2
American elm/green ash	46.0	3.3	.0	.0	49.2	39.5
Elm/ash/red maple group	653.5	179.3	101.9	.0	934.8	10.2
Sugar maple/beech/yellow birch	839.3	91.5	89.1	.0	1,019.8	9.5
Black Cherry	241.8	109.1	29.7	.0	380.7	14.6
Red maple/northern hardwoods	163.0	93.5	16.5	.0	272.9	20.3
Pin cherry/reverting field	.0	.1	1.1	.0	1.2	67.5
Mixed northern hardwoods	516.0	250.4	54.5	.0	820.9	11.2
Northern hardwoods group	1,760.1	544.6	190.9	.0	2,495.6	5.7
Aspen	.0	46.8	26.5	.0	73.2	29.5
Aspen/birch group	.0	46.8	26.5	.0	73.2	29.5
All forest types	7,366.0	1,952.8	777.4	.0	10,096.2	1.9
SE	3.0	5.7	6.8	.0	1.9	

Table 20. Net volume of growing-stock trees on timberland by by stand-size class, forest-type group, and basal-area class, Ohio, 1991

(In millions of cubic feet)

Forest-type group	Basal area class (square feet per acre)					All classes	SE
	0-49	50-99	100-149	150-199	200+		
Sawtimber:							
White/red pine	.0	16.1	27.4	78.0	.0	121.5	31.5
Loblolly/shortleaf	.0	6.5	53.4	9.9	.0	69.8	31.7
Oak/pine	1.6	13.9	79.1	26.5	.0	121.1	35.4
Oak/hickory	27.0	1,054.4	3,051.4	443.3	63.9	4,640.0	4.2
Elm/ash/red maple	4.3	192.4	342.6	114.2	.0	653.5	13.6
Northern hardwoods	8.5	545.8	895.3	296.9	13.6	1,760.1	7.5
All type groups	41.5	1,829.0	4,449.2	968.8	77.5	7,366.0	3.0
Poletimber:							
White/red pine	.0	11.4	7.3	16.5	.0	35.3	54.2
Loblolly/shortleaf	1.3	3.0	28.2	.0	.0	32.5	51.8
Oak/pine	1.7	8.5	6.7	.0	.0	16.9	47.5
Oak/hickory	33.4	529.0	499.0	36.0	.0	1,097.4	7.9
Elm/ash/red maple	7.7	99.0	52.9	19.7	.0	179.3	20.4
Northern hardwoods	12.2	207.7	324.7	.0	.0	544.6	11.4
Aspen/birch	3.5	15.7	27.6	.0	.0	46.8	40.3
All type groups	59.8	874.3	946.4	72.3	.0	1,952.8	5.7
Seedling/sapling:							
White/red pine	.6	14.6	2.6	.0	.0	17.8	58.3
Spruce/fir	.7	.0	.0	.0	.0	.7	100.0
Loblolly/shortleaf	.1	3.9	.0	.0	.0	4.0	63.3
Oak/pine	.3	10.0	.0	.0	.0	10.3	59.6
Oak/hickory	72.9	321.8	30.5	.0	.0	425.1	9.5
Oak/gum/cypress	.1	.0	.0	.0	.0	.1	100.0
Elm/ash/red maple	28.1	65.1	8.7	.0	.0	101.9	19.6
Northern hardwoods	41.7	131.8	17.4	.0	.0	190.9	14.3
Aspen/birch	.4	19.8	6.3	.0	.0	26.5	40.1
All type groups	144.9	567.0	65.5	.0	.0	777.4	6.8
All classes	246.2	3,270.3	5,461.1	1,041.1	77.5	10,096.2	1.9
SE	10.0	3.8	3.8	12.6	45.7	1.9	

Table 21. Net volume of growing-stock trees on timberland by species and stand-size class, Ohio, 1991

(In millions of cubic feet)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern redcedar	7.0	10.1	2.8	.0	19.9	27.2
Red pine	24.3	12.4	3.7	.0	40.4	33.5
White pine	103.8	17.3	17.7	.0	138.8	22.6
Virginia pine	71.7	30.3	8.3	.0	110.3	19.4
Other softwoods	43.6	20.7	5.6	.0	70.0	17.9
Total softwoods	250.4	90.8	38.2	.0	379.4	11.5
Red Maple	649.1	232.4	82.9	.0	964.3	6.2
Sugar maple	660.0	92.7	49.1	.0	801.8	6.0
Hickory	622.6	217.2	60.9	.0	900.6	5.2
Beech	350.2	46.1	21.6	.0	417.9	9.5
White ash	537.2	163.0	66.3	.0	766.5	5.8
Black walnut	132.7	33.7	16.6	.0	183.1	8.1
Yellow-poplar	639.5	166.9	60.5	.0	866.9	6.8
Sycamore	149.7	23.1	20.0	.0	192.8	11.8
Aspen	135.0	113.8	51.9	.0	300.7	8.9
Black cherry	448.9	146.9	53.8	.0	649.6	6.2
Select white oaks	738.8	124.5	72.7	.0	935.9	6.9
Select red oaks	463.9	72.8	24.2	.0	560.9	7.1
Other white oaks	265.7	27.9	14.7	.0	308.4	11.0
Other red oaks	525.7	96.6	38.8	.0	661.0	7.0
Black locust	75.2	23.4	18.1	.0	116.8	14.1
Elm	293.3	166.9	39.8	.0	500.0	6.0
Other hardwoods	428.2	114.1	47.4	.0	589.7	5.8
Total hardwoods	7,115.7	1,862.0	739.1	.0	9,716.8	1.9
Total, all species	7,366.0	1,952.8	777.4	.0	10,096.2	1.9
SE	3.0	5.7	6.8	.0	1.9	

Table 22. Net volume of growing-stock in the sawlog portion of sawtimber trees on timberland by species and diameter class, Ohio, 1991

(In millions of cubic feet)

Species	Diameter% class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	1.9	1.3	1.1	.6	.0	.3	.0	.0	5.1	37.0
Red pine	6.1	6.9	3.6	1.8	1.0	.0	.0	.0	19.3	42.0
White pine	25.5	23.9	25.5	11.9	4.6	.7	.2	.0	92.3	24.6
Virginia pine	25.4	19.4	11.2	4.5	2.9	.0	.0	.0	63.3	20.7
Other softwoods	13.9	7.7	6.7	6.9	2.2	.7	.2	.0	38.1	20.4
Total softwoods	72.7	59.2	48.0	25.6	10.6	1.6	.5	.0	218.2	13.2
Red Maple	.0	105.4	100.4	73.5	58.9	38.2	64.3	22.7	463.4	8.4
Sugar maple	.0	82.6	84.1	78.5	51.0	40.4	70.5	9.4	416.6	7.5
Hickory	.0	111.6	104.9	97.1	71.2	26.7	38.2	4.3	454.0	6.4
Beech	.0	32.6	36.8	26.4	30.9	31.4	96.0	32.8	287.0	9.9
White ash	.0	82.7	81.4	71.2	57.3	37.2	63.4	9.3	402.4	7.4
Black walnut	.0	26.5	29.5	15.1	13.1	8.5	3.5	.0	96.1	9.9
Yellow-poplar	.0	89.5	105.9	95.4	78.6	61.2	84.8	11.1	526.5	7.6
Sycamore	.0	15.2	19.4	21.6	17.5	16.1	26.1	22.3	138.2	13.1
Aspen	.0	41.1	30.7	21.2	9.2	6.1	12.1	14.3	134.7	10.6
Black cherry	.0	78.6	87.4	49.8	44.5	26.8	35.6	4.2	326.8	7.8
Select white oaks	.0	78.9	104.3	105.1	94.1	70.0	102.9	53.4	608.7	7.7
Select red oaks	.0	47.1	44.6	60.1	51.1	38.1	95.2	44.3	380.5	8.0
Other white oaks	.0	31.5	35.4	44.7	33.8	24.7	30.6	2.4	203.1	12.4
Other red oaks	.0	56.6	68.7	82.6	62.3	47.6	94.8	34.3	447.0	7.6
Black locust	.0	14.1	13.1	8.8	5.5	3.5	4.3	.1	49.4	17.0
Elm	.0	48.6	45.0	29.0	14.8	8.4	14.6	7.3	167.7	8.4
Other hardwoods	.0	61.1	57.1	42.3	33.1	17.0	41.4	11.1	263.3	7.9
Total hardwoods	.0	1,003.8	1,048.8	922.3	727.0	501.9	878.3	283.4	5,365.4	2.4
Total, all species	72.7	1,063.0	1,096.8	947.9	737.6	503.5	878.7	283.4	5,583.6	2.4
SE	13.7	2.6	2.9	3.6	4.3	4.8	4.9	10.7	2.4	

GROWTH AND REMOVALS

More than 98 percent of the plots that were visited at the previous survey in Ohio were remeasured in 1990-91. Because of this large remeasurement, the estimates of net growth and net change are considered to be very accurate. This provides an opportunity to look at real change from survey to survey, rather than the difference between estimates taken at two different surveys based on different procedures.

The method of calculating change was modified somewhat. The current volume of a tree is calculated based on the current diameter, tree class, and height. The previous volume is calculated using the previous diameter, tree class, and a previous height that is regressed from the current height. This eliminates bias that occurs when a tree's height is measured at different surveys with potentially different inventory procedures. The difference between the volumes is net change. Different types of trees (e.g., mortality, accretion, removals) contribute to the different components of total net change between inventories.

As in the past, both growing-stock and sawtimber had positive ratios of annual net growth to removals. However, not all species groups showed this positive trend. Looking at growing-stock first, the red maple group had the highest annual net growth. Other groups with large totals are yellow-poplar, sugar maple, white ash, and black cherry.

While annual net growth is important, the ratio between growth and removals is a more significant statistic. Not only can it explain how the resource has changed in the past, but it gives some insight to future trends. All species together showed a 2.4:1 ratio of average annual net growing-stock growth to removals. Again, the red maple group led with a ratio of 5.7:1. White pine followed at 5.2:1, but was only 13th in total net growth. Other groups with high ratios are: elm, sycamore, sugar maple, and yellow-poplar. Only other white oaks showed a negative ratio of growing-stock volume (more removed than was growing).

Average annual net growth and removals of sawtimber reveals a somewhat different picture. Yellow-poplar topped the list in total annual net growth. It was followed by select white oaks, red maple, white ash, and black cherry. White pine led in terms of growth to removals with a ratio of 7.5:1. Other leading groups are: black locust, red maple, aspen, and elm. Average annual net growth of both select white and select red oaks barely outpaced removals. Three groups had negative ratios: other red oaks, other white oaks, and beech. The average of all species in terms of sawtimber – 1.8:1 – did not have as large a positive ratio as did growing-stock.

SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	GROWING STOCK			SAWTIMBER		
	Growth[1]	Removals[1]	Ratio[2]	Growth[1]	Removals[1]	Ratio[2]
Red Maple	4.8	0.8	5.7 : 1	12.0	3.1	3.9 : 1
Sugar Maple	3.2	1.0	3.2 : 1	9.3	3.8	2.5 : 1
Hickory	2.2	1.1	1.9 : 1	7.5	3.7	2.0 : 1
White Ash	3.2	1.1	2.8 : 1	11.6	4.0	2.9 : 1
Yellow-poplar	4.1	1.4	3.0 : 1	15.1	6.7	2.2 : 1
Black Cherry	3.1	1.0	2.9 : 1	10.4	3.3	3.1 : 1
Select White Oaks	2.9	2.3	1.3 : 1	12.0	11.8	1.0 : 1
Select Red Oaks	2.2	1.4	1.6 : 1	8.2	7.4	1.1 : 1
Other White Oaks	0.7	0.7	(0.9 : 1)	2.6	2.8	(0.9 : 1)
Other Red Oaks	2.2	2.0	1.1 : 1	8.6	9.0	(0.9 : 1)
Elm	2.1	0.5	4.4 : 1	4.2	1.4	3.1 : 1

[1] Average annual cubic-foot volume per acre for growing stock, and average annual board-foot volume per acre for sawtimber.
[2] Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.

Table 23. Average annual net growth and average annual removals of growing-stock volume on timberland by species, Ohio, 1991

(In thousands of cubic feet)

Species	Growth and removals	
	Growth	Removals
Eastern redcedar	894	-131
Red pine	1,045	-48
White pine	6,757	-1,302
Virginia pine	1,003	-1,043
Other softwoods	1,244	-542
Total softwoods	10,944	-3,066
Red Maple	36,505	-6,448
Sugar maple	24,653	-7,805
Hickory	16,912	-8,823
Beech	10,377	-5,401
White ash	24,086	-8,632
Black walnut	4,728	-2,710
Yellow-poplar	31,786	-10,565
Sycamore	5,396	-1,638
Aspen	8,569	-2,972
Black cherry	23,183	-7,976
Select white oaks	22,505	-17,743
Select red oaks	16,725	-10,714
Other white oaks	5,099	-5,586
Other red oaks	17,270	-15,064
Black locust	1,695	-1,560
Elm	15,864	-3,766
Other hardwoods	16,858	-5,267
Total hardwoods	282,211	-122,671
Total, all species	293,155	-125,737

Table 24. Average annual net growth and average annual removals of sawtimber volume on timberland by species, Ohio, 1991

(In thousands of board feet)

Species	Growth and removals	
	Growth	Removals
Eastern redcedar	604	-201
Red pine	1,919	0
White pine	25,848	-3,403
Virginia pine	5,179	-3,925
Other softwoods	2,644	-2,448
Total softwoods	36,194	-9,977
Red Maple	91,069	-23,240
Sugar maple	71,126	-29,668
Hickory	57,566	-28,423
Beech	25,725	-29,292
White ash	88,221	-30,097
Black walnut	17,853	-11,125
Yellow-poplar	117,389	-52,140
Sycamore	23,139	-7,727
Aspen	35,053	-10,097
Black cherry	79,553	-25,367
Select white oaks	92,494	-92,205
Select red oaks	62,958	-57,670
Other white oaks	20,118	-21,813
Other red oaks	66,609	-69,144
Black locust	8,089	-1,771
Elm	32,427	-10,337
Other hardwoods	39,959	-15,467
Total hardwoods	929,346	-515,583
Total, all species	965,540	-525,560

Table 25. Average annual mortality of growing-stock and sawtimber volume on timberland by species, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Mortality	
	Growing-stock	Sawtimber
Eastern redcedar	-28	-50
Red pine	-258	-460
White pine	-219	-384
Virginia pine	-2,941	-6,924
Other softwoods	-1,134	-2,600
Total softwoods	-4,579	-10,419
Red Maple	-2,623	-6,555
Sugar maple	-2,533	-7,780
Hickory	-5,253	-14,544
Beech	-1,828	-11,367
White ash	-4,178	-9,396
Black walnut	-997	-1,852
Yellow-poplar	-3,367	-9,906
Sycamore	-364	-1,240
Aspen	-3,553	-4,483
Black cherry	-3,354	-6,928
Select white oaks	-2,364	-5,852
Select red oaks	-2,836	-13,013
Other white oaks	-1,916	-6,468
Other red oaks	-3,984	-14,144
Black locust	-2,494	-2,700
Elm	-6,440	-12,152
Other hardwoods	-4,532	-9,162
Total hardwoods	-52,615	-137,542
Total, all species	-57,194	-147,960

Table 26. Average annual net growth and average annual removals of growing-stock volume on timberland by ownership class and species group, Ohio, 1991

(In thousands of cubic feet)

Ownership class	Net growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Other public	1,565	15,876	17,441	-697	-12,977	-13,674
Forest industry	742	5,655	6,397	0	-4,069	-4,069
Other private	8,955	260,362	269,317	-2,307	-105,688	-107,995
All classes	11,261	281,894	293,155	-3,004	-122,733	-125,737

Table 27. Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group, Ohio, 1991

(In thousands of board feet)

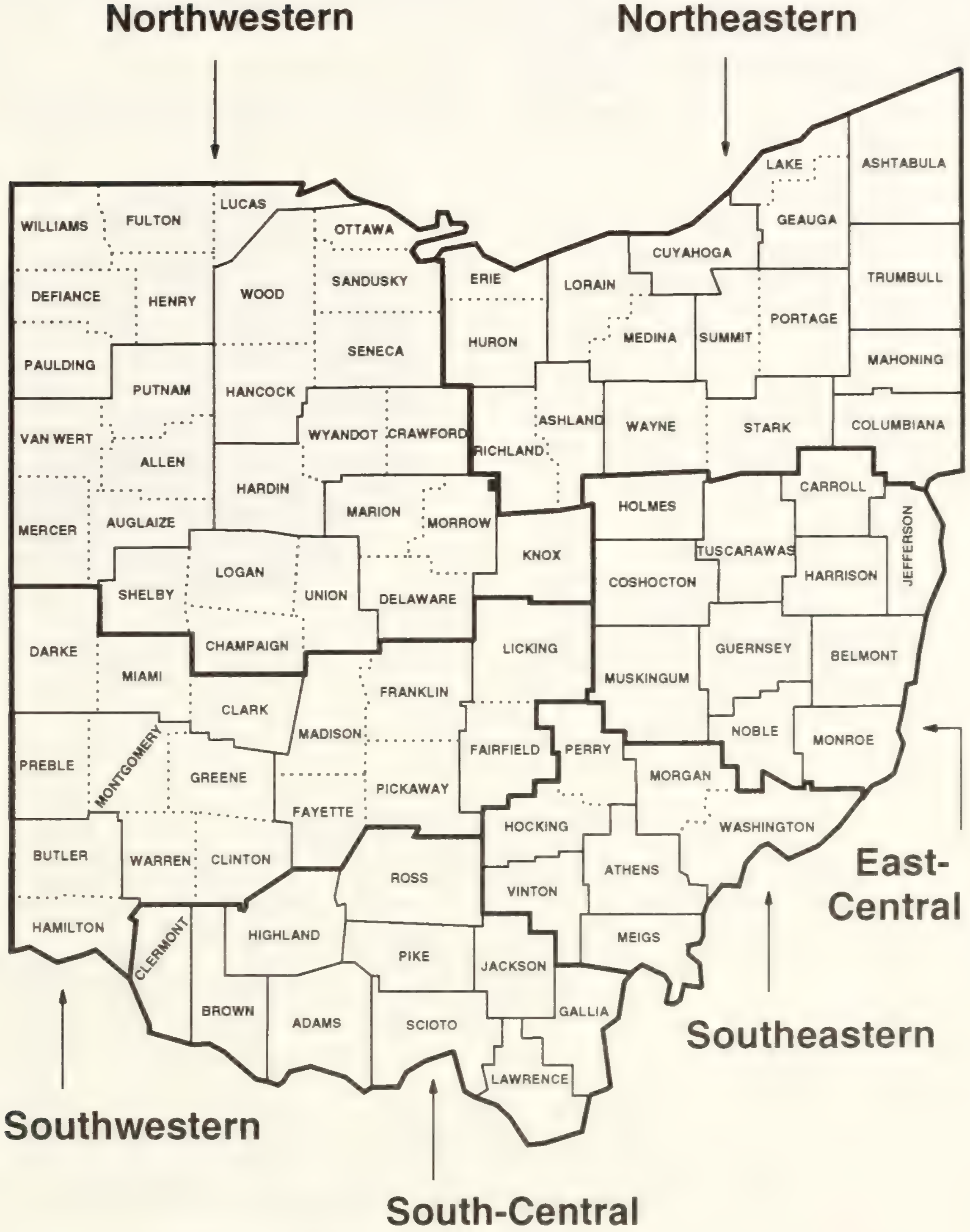
Ownership class	Net growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Other public	3,487	53,498	56,985	-489	-47,581	-48,071
Forest industry	2,416	19,035	21,451	0	-14,407	-14,407
Other private	30,867	856,237	887,104	-9,355	-453,727	-463,082
All classes	36,770	928,770	965,540	-9,844	-515,716	-525,560

Table 28. Average annual net change of growing-stock volume on timberland by species and component of change, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Eastern redcedar	541	233	774	-28	153	-6	894	-131	763
Red pine	438	855	1,293	-258	53	-43	1,045	-48	997
White pine	2,572	4,415	6,987	-219	31	-43	6,757	-1,302	5,455
Virginia pine	975	2,603	3,578	-2,941	399	-33	1,003	-1,043	-39
Other softwoods	917	1,414	2,331	-1,134	66	-20	1,244	-542	702
Total softwoods	5,443	9,521	14,964	-4,579	703	-144	10,944	-3,066	7,878
Red Maple	12,150	24,199	36,349	-2,623	3,719	-940	36,505	-6,448	30,057
Sugar maple	7,005	18,423	25,428	-2,533	2,632	-875	24,653	-7,805	16,848
Hickory	3,921	16,910	20,831	-5,253	1,606	-271	16,912	-8,823	8,089
Beech	1,029	7,917	8,946	-1,828	4,015	-757	10,377	-5,401	4,976
White ash	7,780	18,696	26,476	-4,178	2,334	-546	24,086	-8,632	15,453
Black walnut	1,703	3,448	5,151	-997	741	-167	4,728	-2,710	2,018
Yellow-poplar	6,120	28,385	34,505	-3,367	695	-48	31,786	-10,565	21,220
Sycamore	919	4,475	5,395	-364	380	-15	5,396	-1,638	3,758
Aspen	3,813	8,146	11,959	-3,553	183	-21	8,569	-2,972	5,597
Black cherry	6,396	15,580	21,976	-3,354	4,845	-284	23,183	-7,976	15,207
Select white oaks	2,989	19,977	22,966	-2,364	2,363	-461	22,505	-17,743	4,762
Select red oaks	3,908	15,155	19,063	-2,836	877	-379	16,725	-10,714	6,010
Other white oaks	694	6,134	6,828	-1,916	250	-63	5,099	-5,586	-486
Other red oaks	3,859	16,958	20,817	-3,984	617	-181	17,270	-15,064	2,206
Black locust	1,820	2,017	3,837	-2,494	827	-475	1,695	-1,560	135
Elm	9,263	12,050	21,314	-6,440	1,434	-445	15,864	-3,766	12,097
Other hardwoods	7,112	11,799	18,912	-4,532	3,331	-852	16,858	-5,267	11,591
Total hardwoods	80,482	230,272	310,755	-52,615	30,851	-6,779	282,211	-122,671	159,540
Total, all species	85,925	239,794	325,719	-57,194	31,553	-6,923	293,155	-125,737	167,418

UNIT LEVEL TABLES



NOTE: Counties connected by dashed borders are grouped into sampling units called supercounties.

SOUTH-CENTRAL UNIT

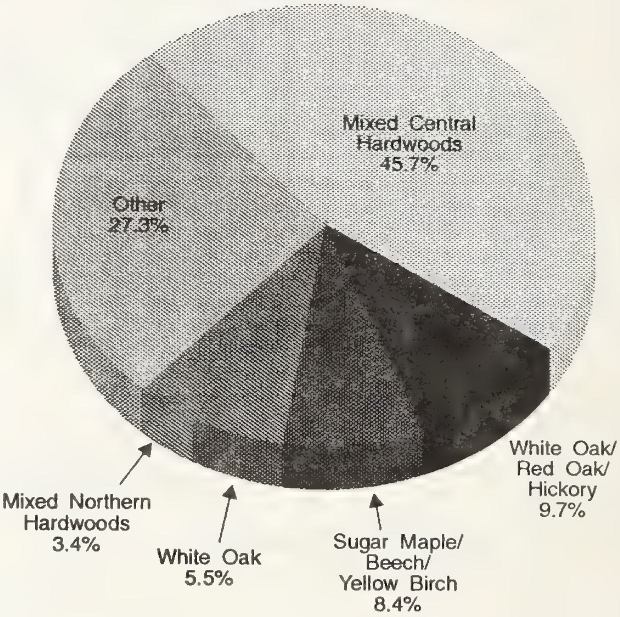
The South-Central Unit is made up of 10 counties. It is one of three units that make up the Hill Country. Just under 53 percent of the area is in timberland. On average, there are approximately 109 trees per acre, 1,260 cubic feet per acre, and 3,875 board feet per acre. These numbers are somewhat less than the State averages.

There were 33 individual forest types recorded. The mixed central hardwoods type is the overwhelming leader with 46 percent of the timberland area. The oak/hickory forests predominate, with nearly 75 percent of the timberland area in this type group. The select white oaks are the predominate species group in the unit.

The unit is fairly heavily harvested, as revealed by the average annual net growth to removals ratios. The cubic feet ratio is 1.7:1, and the board feet ratio is 1.5:1. Maple and ash have some of the highest growth to removals ratios.

However, the more heavily harvested species within the unit – red oak, white oak, and yellow poplar – are either more closely balanced or are being harvested more than they are growing. Particularly important is the growth to removals ratio of select red oaks. There is less red oak growing annualy than is being removed from timberlands across the unit.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	CUBIC-FOOT VOLUME Volume/acre	Percent	Ratio[1]	BOARD-FOOT VOLUME Volume/acre	Percent	Ratio[1]
Red Maple	10.7	103	8.1	5.0 : 1	296	7.6	3.2 : 1
Sugar Maple	11.4	114	9.1	3.0 : 1	307	7.9	2.0 : 1
Hickory	11.0	130	10.3	(0.9 : 1)	362	9.3	1.0 : 1
White Ash	6.9	70	5.6	3.5 : 1	188	4.9	3.4 : 1
Yellow-poplar	6.5	116	9.2	2.7 : 1	432	11.1	2.2 : 1
Black Cherry	2.3	29	2.3	15.5 : 1	86	2.2	11.3 : 1
Select White Oaks	11.7	192	15.2	1.4 : 1	708	18.3	1.4 : 1
Select Red Oaks	2.7	50	4.0	1.1 : 1	185	4.8	(0.7 : 1)
Other White Oaks	6.2	87	6.9	(0.7 : 1)	282	7.3	(0.7 : 1)
Other Red Oaks	6.3	111	8.8	(0.7 : 1)	391	10.1	(0.7 : 1)

[1] Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.

Table 29. Area of timberland by forest type, forest-type group, and stand-size class, South-Central Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Hemlock	2.5	.0	.0	.0	2.5	100.0
White/red pine group	2.5	.0	.0	.0	2.5	100.0
Shortleaf pine	4.3	.0	.0	.0	4.3	100.0
Virginia pine	16.7	7.4	8.4	.0	32.4	36.6
Eastern redcedar	2.8	8.4	6.6	.0	17.8	42.5
Loblolly/shortleaf group	23.7	15.8	15.0	.0	54.5	26.6
Wh. pine/no.red oak/wh. ash	.0	.0	4.2	.0	4.2	100.0
Eastern redcedar/hardwood	2.4	3.4	3.8	.0	9.6	58.6
Virginia pine/oak	17.1	2.3	5.0	.0	24.4	43.3
Oak/pine group	19.5	5.7	13.0	.0	38.1	33.2
Post, black, or bear oak	16.6	.0	3.1	.0	19.7	47.4
Chestnut oak	27.3	2.5	8.4	.0	38.2	32.1
White oak/red oak/hickory	105.5	34.3	28.3	.0	168.1	18.0
White oak	69.7	4.2	21.3	.0	95.2	26.9
Northern red oak	4.6	.0	.0	.0	4.6	72.7
Y-poplar/wh. oak/no.red oak	26.6	3.9	6.3	.0	36.8	36.2
Black locust	7.8	.0	34.6	.0	42.4	36.6
Yellow-poplar	16.5	3.6	17.5	.0	37.6	33.2
Hawthorn/reverting field	.0	.0	14.9	.0	14.9	45.1
Scarlet oak	9.0	.0	.0	.0	9.0	83.0
Sassafras/persimmon	5.6	2.9	7.6	.0	16.1	53.4
Red maple/central hardwood	10.1	.0	11.1	.0	21.1	50.5
Mixed central hardwoods	386.5	245.7	161.3	.0	793.6	6.3
Oak/hickory group	685.8	297.0	314.4	.0	1,297.2	3.6
Black ash/Amer. elm/red maple	18.0	8.0	11.4	.0	37.5	32.5
Red maple(upland)	.0	.0	14.8	.0	14.8	62.5
River birch/sycamore	2.4	.0	1.8	.0	4.3	71.4
Cottonwood	1.7	.0	3.1	.0	4.8	73.3
Willow	.0	.0	3.2	.0	3.2	100.0
Sycamore/pecan/American elm	.0	.0	6.3	.0	6.3	73.5
American elm/green ash	4.0	2.7	.0	.0	6.7	72.1
Elm/ash/red maple group	26.2	10.7	40.7	.0	77.6	22.5
Sugar maple/beech/yellow birch	101.1	4.9	40.1	.0	146.1	17.4
Black Cherry	18.4	16.3	1.8	.0	36.5	49.6
Red maple/northern hardwoods	2.1	6.1	.0	.0	8.1	78.7
Pin cherry/reverting field	.0	.0	11.0	.0	11.0	70.7
Mixed northern hardwoods	23.7	9.4	26.7	.0	59.7	27.6
Northern hardwoods group	145.3	36.5	79.7	.0	261.5	13.4
Aspen	.0	5.7	.0	.0	5.7	100.0
Aspen/birch group	.0	5.7	.0	.0	5.7	100.0
All forest types	903.0	371.3	462.7	.0	1,737.0	1.8
SE	5.3	10.7	9.1	.0	1.8	

Table 30. Number of growing-stock trees on timberland by species and diameter class, South-Central Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	45,136	28,559	10,145	3,498	1,406	328	139	77
White pine	841	1,302	502	742	287	148	29	7
Virginia pine	19,799	6,733	3,274	2,296	1,904	1,342	787	358
Other softwoods	5,486	728	301	715	338	584	185	101
Total softwoods	71,262	37,322	14,222	7,251	3,935	2,402	1,141	542
Red Maple	878,974	70,515	19,027	8,377	3,972	2,316	1,654	952
Sugar maple	973,093	75,989	21,321	8,348	4,670	2,365	1,764	1,270
Hickory	253,344	14,336	5,295	5,555	5,080	3,092	2,312	1,283
Beech	53,603	6,555	1,142	213	415	645	342	209
White ash	848,920	28,830	8,656	4,129	3,177	1,767	1,229	854
Black walnut	6,351	1,485	1,202	477	1,085	740	452	349
Yellow-poplar	178,798	26,580	5,918	3,493	2,099	1,359	1,679	978
Sycamore	12,941	1,153	1,817	322	71	321	160	154
Aspen	5,119	1,388	184	240	661	294	147	88
Black cherry	371,097	9,694	7,165	985	1,052	609	386	522
Select white oaks	177,806	8,372	4,678	3,805	3,666	3,815	2,685	2,197
Select red oaks	104,069	10,176	3,377	1,384	862	701	595	203
Other white oaks	155,167	10,829	3,799	2,723	1,921	1,851	1,302	1,145
Other red oaks	159,067	12,360	5,417	1,992	2,699	1,400	1,653	1,141
Black locust	64,687	9,845	4,717	1,973	1,212	1,006	360	221
Elm	847,716	30,707	12,176	3,816	2,890	879	429	194
Other hardwoods	2,139,632	150,917	38,310	9,195	4,929	2,434	1,405	698
Total hardwoods	7,230,384	469,731	144,201	57,026	40,463	25,595	18,555	12,459
Total, all species	7,301,646	507,053	158,423	64,277	44,397	27,997	19,696	13,001
SE	4.8	5.5	6.3	5.1	4.7	5.3	5.0	5.1

Table 30. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	40	0	7	0	0	5,496	89,335	21.9
White pine	0	5	0	0	0	1,218	3,864	55.8
Virginia pine	151	36	0	0	0	6,874	36,680	32.6
Other softwoods	72	24	13	0	0	2,032	8,548	47.6
Total softwoods	263	66	20	0	0	15,620	138,427	17.5
Red Maple	627	261	171	189	71	18,591	987,107	10.1
Sugar maple	663	375	277	137	6	19,876	1,090,278	11.7
Hickory	850	555	196	112	5	19,041	292,017	9.1
Beech	110	150	115	172	31	2,404	63,703	27.4
White ash	411	255	124	93	1	12,041	898,448	9.0
Black walnut	104	29	7	5	0	3,247	12,286	23.7
Yellow-poplar	625	500	279	325	16	11,353	222,650	16.2
Sycamore	174	64	74	57	32	1,431	17,341	58.7
Aspen	43	9	7	9	0	1,497	8,187	36.3
Black cherry	219	107	38	23	2	3,942	391,897	10.7
Select white oaks	1,750	1,175	637	515	80	20,325	211,182	12.9
Select red oaks	319	173	158	256	51	4,703	122,326	14.9
Other white oaks	851	431	271	324	16	10,834	180,629	23.2
Other red oaks	885	475	283	417	41	10,987	187,831	20.1
Black locust	61	107	30	24	0	4,994	84,243	27.4
Elm	71	96	0	19	0	8,396	898,995	10.8
Other hardwoods	405	196	67	114	27	19,470	2,348,329	6.9
Total hardwoods	8,169	4,959	2,734	2,790	382	173,132	8,017,448	4.4
Total, all species	8,432	5,025	2,754	2,790	382	188,752	8,155,874	4.4
SE	8.1	9.2	9.3	9.7	21.4	3.1	4.4	

Table 31. Net volume of sawtimber trees on timberland by species and diameter class, South-Central Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	6.0	4.7	4.5	2.4	.0	1.2	.0	.0	18.9	39.0
White pine	5.2	2.1	1.0	.0	1.1	.0	.0	.0	9.4	65.0
Virginia pine	45.6	47.6	30.5	17.2	5.7	.0	.0	.0	146.6	30.8
Other softwoods	22.9	12.2	10.3	8.5	3.3	2.5	.0	.0	59.7	36.5
Total softwoods	79.7	66.6	46.3	28.1	10.1	3.8	.0	.0	234.6	21.7
Red Maple	.0	109.3	92.9	90.2	50.0	39.4	76.9	54.8	513.4	19.7
Sugar maple	.0	116.3	131.2	94.1	76.1	66.5	45.1	3.3	532.5	14.1
Hickory	.0	155.8	137.1	132.0	110.3	51.0	39.1	3.8	629.1	12.9
Beech	.0	20.7	20.5	16.8	31.4	31.1	73.6	20.2	214.3	28.8
White ash	.0	86.8	89.1	52.4	44.3	26.8	27.1	.6	327.2	13.9
Black walnut	.0	27.5	27.1	11.2	4.7	1.0	2.4	.0	73.9	18.6
Yellow-poplar	.0	129.5	120.4	125.3	120.5	92.3	147.7	13.9	749.6	15.5
Sycamore	.0	10.0	15.3	24.6	11.5	17.3	19.9	25.2	123.7	24.9
Aspen	.0	10.7	11.6	6.6	2.1	2.1	3.7	.0	36.8	43.4
Black cherry	.0	30.1	46.3	34.4	20.0	9.4	7.9	2.1	150.2	19.8
Select white oaks	.0	167.7	232.7	261.0	234.7	144.3	157.2	32.1	1,229.7	15.5
Select red oaks	.0	39.3	21.4	44.5	34.4	43.5	98.0	40.2	321.1	13.3
Other white oaks	.0	76.5	103.5	99.0	65.4	55.3	82.4	7.7	489.9	13.2
Other red oaks	.0	103.7	118.0	125.9	85.4	71.9	156.1	19.0	680.0	11.7
Black locust	.0	16.2	13.3	6.4	15.4	4.6	6.4	.0	62.2	32.6
Elm	.0	21.5	16.6	8.4	13.8	.0	5.9	.0	66.1	20.1
Other hardwoods	.0	76.4	60.4	53.0	33.6	17.1	39.0	16.2	295.5	15.7
Total hardwoods	.0	1,197.9	1,257.2	1,185.8	953.5	673.5	988.3	239.1	6,495.2	5.4
Total, all species	79.7	1,264.5	1,303.5	1,213.9	963.6	677.2	988.3	239.1	6,729.8	5.2
SE	25.4	5.1	5.6	8.8	10.4	9.4	10.9	20.8	5.2	

Table 32. Net volume of sawtimber trees on timberland by forest type and stand-size class, South-Central Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Hemlock	13.5	.0	.0	.0	13.5	100.0
White/red pine group	13.5	.0	.0	.0	13.5	100.0
Shortleaf pine	22.2	.0	.0	.0	22.2	100.0
Virginia pine	89.3	5.3	1.5	.0	96.2	51.1
Eastern redcedar	2.9	12.6	1.9	.0	17.3	63.4
Loblolly/shortleaf group	114.3	17.9	3.5	.0	135.7	40.3
Wh. pine/no.red oak/wh. ash	.0	.0	2.5	.0	2.5	100.0
Eastern redcedar/hardwood	5.1	3.1	.0	.0	8.2	72.9
Virginia pine/oak	57.4	.0	2.4	.0	59.8	48.1
Oak/pine group	62.5	3.1	4.9	.0	70.5	41.9
Post, black, or bear oak	51.6	.0	.0	.0	51.6	54.3
Chestnut oak	198.5	7.8	24.0	.0	230.3	31.8
White oak/red oak/hickory	703.8	70.3	50.2	.0	824.3	19.9
White oak	596.8	11.2	48.4	.0	656.4	38.6
Northern red oak	40.1	.0	.0	.0	40.1	76.7
Y-poplar/wh. oak/no.red oak	226.0	3.3	12.3	.0	241.6	43.0
Black locust	16.0	.0	5.7	.0	21.7	75.8
Yellow-poplar	135.1	9.1	36.8	.0	180.9	44.7
Hawthorn/reverting field	.0	.0	1.5	.0	1.5	100.0
Scarlet oak	17.1	.0	.0	.0	17.1	76.5
Sassafras/persimmon	19.7	.0	.0	.0	19.7	100.0
Red maple/central hardwood	73.4	.0	11.1	.0	84.4	64.0
Mixed central hardwoods	2,467.7	357.8	239.1	.0	3,064.5	9.1
Oak/hickory group	4,545.5	459.5	429.1	.0	5,434.2	6.5
Black ash/Amer. elm/red maple	171.6	18.3	1.5	.0	191.4	47.6
Red maple(upland)	.0	.0	2.1	.0	2.1	100.0
River birch/sycamore	7.7	.0	4.2	.0	11.9	73.7
Cottonwood	7.9	.0	.5	.0	8.5	94.1
Sycamore/pecan/American elm	.0	.0	3.8	.0	3.8	100.0
American elm/green ash	11.6	2.8	.0	.0	14.4	82.8
Elm/ash/red maple group	198.9	21.1	12.1	.0	232.1	39.9
Sugar maple/beech/yellow birch	566.8	2.1	57.6	.0	626.5	23.2
Black Cherry	37.3	11.3	1.3	.0	49.9	48.4
Red maple/northern hardwoods	6.8	10.3	.0	.0	17.1	72.2
Pin cherry/reverting field	.0	.0	.9	.0	.9	100.0
Mixed northern hardwoods	83.3	9.0	35.3	.0	127.6	31.7
Northern hardwoods group	694.2	32.7	95.1	.0	822.0	18.5
Aspen	.0	21.9	.0	.0	21.9	100.0
Aspen/birch group	.0	21.9	.0	.0	21.9	100.0
All forest types	5,628.9	556.2	544.7	.0	6,729.8	5.2
SE	6.9	13.3	14.8	.0	5.2	

Table 33. Net volume of growing-stock trees on timberland by species and diameter class, South-Central Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	7.5	6.0	2.2	1.5	1.2	.6	.0	.3	.0	.0	19.4	28.0
White pine	2.1	1.9	1.6	.5	.2	.0	.2	.0	.0	.0	6.6	58.5
Virginia pine	7.0	11.8	14.4	12.7	7.7	4.2	1.3	.0	.0	.0	59.1	26.8
Other softwoods	2.0	1.9	6.6	3.1	2.4	2.1	.8	.5	.0	.0	19.4	36.7
Total softwoods	18.7	21.6	24.7	17.8	11.5	6.9	2.3	.9	.0	.0	104.4	17.5
Red Maple	18.5	22.0	24.2	28.2	22.2	20.1	10.2	8.7	14.6	9.5	178.2	13.5
Sugar maple	22.1	28.8	25.7	29.5	30.8	20.4	16.0	14.6	9.7	.7	198.3	11.5
Hickory	14.2	32.5	35.5	39.6	31.6	28.7	23.5	10.7	8.2	.6	225.2	10.0
Beech	.4	2.0	6.8	4.9	5.0	3.9	6.5	6.1	13.6	4.7	54.0	24.4
White ash	9.6	17.5	19.0	20.9	19.9	12.2	10.1	6.1	6.3	.1	121.8	11.5
Black walnut	1.4	5.1	7.0	6.4	6.3	2.4	1.0	.2	.5	.0	30.3	15.7
Yellow-poplar	9.6	14.2	17.4	33.3	28.5	26.3	24.6	18.4	27.4	2.4	202.1	13.5
Sycamore	.8	.4	3.4	2.6	3.3	5.2	2.6	3.5	3.9	4.7	30.4	21.8
Aspen	.8	5.3	4.2	2.7	2.3	1.5	.4	.4	.7	.0	18.3	41.4
Black cherry	2.8	6.9	6.2	7.1	11.5	7.7	4.3	2.1	1.4	.4	50.4	16.9
Select white oaks	9.2	20.5	38.5	42.1	52.1	55.2	48.5	29.7	31.2	5.9	333.0	12.9
Select red oaks	3.6	5.6	7.4	10.4	5.2	10.2	7.4	8.7	19.8	8.4	86.5	11.6
Other white oaks	6.3	10.6	18.5	19.9	25.8	24.1	15.2	11.9	18.0	1.6	151.9	12.5
Other red oaks	4.5	17.4	15.8	28.3	27.6	28.4	19.0	15.3	31.4	4.9	192.7	11.0
Black locust	3.9	5.2	8.0	4.1	3.4	1.6	3.1	1.0	1.4	.0	31.6	19.7
Elm	8.5	13.0	6.8	5.2	4.0	2.0	3.1	.0	1.1	.0	43.8	12.7
Other hardwoods	20.8	26.0	20.3	20.5	14.4	12.1	7.3	3.8	7.7	3.1	135.9	11.7
Total hardwoods	137.1	232.9	264.7	305.8	294.0	262.0	202.9	141.2	197.0	46.8	2,084.3	3.9
Total, all species	155.8	254.5	289.4	323.6	305.5	268.8	205.2	142.1	197.0	46.8	2,188.7	3.7
SE	5.4	4.8	5.4	5.1	5.5	8.4	9.9	9.3	10.4	19.4	3.7	

Table 34. Net volume of growing-stock trees on timberland by forest type and stand-size class, South-Central Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Hemlock	4.3	.0	.0	.0	4.3	100.0
White/red pine group	4.3	.0	.0	.0	4.3	100.0
Shortleaf pine	8.3	.0	.0	.0	8.3	100.0
Virginia pine	33.7	7.9	2.2	.0	43.9	44.0
Eastern redcedar	1.1	8.8	1.3	.0	11.2	63.8
Loblolly/shortleaf group	43.1	16.7	3.5	.0	63.3	34.3
Wh. pine/no.red oak/wh. ash	.0	.0	3.6	.0	3.6	100.0
Eastern redcedar/hardwood	1.6	1.9	.2	.0	3.7	67.7
Virginia pine/oak	22.1	.6	4.6	.0	27.4	44.2
Oak/pine group	23.7	2.5	8.4	.0	34.7	37.1
Post, black, or bear oak	14.9	.0	.0	.0	14.9	53.6
Chestnut oak	58.1	2.9	7.9	.0	68.9	31.3
White oak/red oak/hickory	197.9	40.9	20.3	.0	259.1	18.9
White oak	154.6	5.4	20.1	.0	180.0	33.8
Northern red oak	11.5	.0	.0	.0	11.5	71.0
Y-poplar/wh. oak/no.red oak	61.5	2.9	4.5	.0	68.9	40.1
Black locust	3.9	.0	5.3	.0	9.2	52.3
Yellow-poplar	31.6	5.2	10.4	.0	47.3	41.2
Hawthorn/reverting field	.0	.0	.5	.0	.5	78.4
Scarlet oak	6.8	.0	.0	.0	6.8	74.2
Sassafras/persimmon	9.9	.7	.2	.0	10.9	91.6
Red maple/central hardwood	20.2	.0	7.3	.0	27.5	56.5
Mixed central hardwoods	702.0	218.4	102.5	.0	1,022.9	7.6
Oak/hickory group	1,272.8	276.5	179.0	.0	1,728.4	5.1
Black ash/Amer. elm/red maple	42.3	10.2	.8	.0	53.3	42.1
Red maple(upland)	.0	.0	2.7	.0	2.7	72.2
River birch/sycamore	2.8	.0	2.0	.0	4.8	71.8
Cottonwood	2.0	.0	.3	.0	2.4	86.9
Willow	.0	.0	.1	.0	.1	100.0
Sycamore/pecan/American elm	.0	.0	1.3	.0	1.3	92.2
American elm/green ash	4.2	1.3	.0	.0	5.5	80.0
Elm/ash/red maple group	51.3	11.5	7.3	.0	70.0	33.2
Sugar maple/beech/yellow birch	163.5	2.6	22.9	.0	189.0	20.9
Black Cherry	13.8	11.6	1.5	.0	26.9	43.7
Red maple/northern hardwoods	2.7	5.9	.0	.0	8.6	75.3
Pin cherry/reverting field	.0	.0	.4	.0	.4	100.0
Mixed northern hardwoods	29.2	6.6	16.4	.0	52.2	29.0
Northern hardwoods group	209.3	26.7	41.1	.0	277.1	15.6
Aspen	.0	10.9	.0	.0	10.9	100.0
Aspen/birch group	.0	10.9	.0	.0	10.9	100.0
All forest types	1,604.6	344.8	239.4	.0	2,188.7	3.7
SE	6.2	11.8	12.6	.0	3.7	

Table 35. Average annual net change of growing-stock volume on timberland by species and component of change, South-Central Unit, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Eastern redcedar	505	231	737	-28	153	-6	856	-131	725
Red pine	0	0	0	0	0	0	0	-11	-11
White pine	256	160	416	0	0	0	416	0	416
Virginia pine	539	1,268	1,807	-1,370	309	-33	713	-963	-250
Other softwoods	216	331	547	-608	24	0	-37	-304	-340
Total softwoods	1,516	1,991	3,507	-2,006	486	-39	1,948	-1,408	540
Red Maple	1,787	4,504	6,291	-521	224	-38	5,957	-1,175	4,782
Sugar maple	1,901	4,911	6,812	-994	148	-174	5,792	-1,920	3,873
Hickory	647	3,971	4,619	-2,368	200	-90	2,360	-2,587	-227
Beech	17	1,600	1,618	-275	264	-62	1,544	-209	1,335
White ash	1,320	2,595	3,915	-516	140	-19	3,519	-1,001	2,519
Black walnut	242	515	758	-201	22	-64	515	-383	132
Yellow-poplar	1,083	6,733	7,816	-1,513	70	-18	6,355	-2,293	4,062
Sycamore	168	740	907	-135	68	0	840	-157	683
Aspen	231	535	766	-343	0	0	422	-13	409
Black cherry	337	1,267	1,605	-216	718	-30	2,076	-134	1,942
Select white oaks	494	7,005	7,499	-757	247	-126	6,864	-4,763	2,101
Select red oaks	399	2,207	2,605	-623	69	-104	1,948	-1,787	161
Other white oaks	389	3,176	3,565	-1,264	102	-28	2,375	-3,351	-976
Other red oaks	725	5,040	5,765	-1,825	122	-3	4,058	-5,527	-1,469
Black locust	871	489	1,361	-427	74	-129	878	-355	524
Elm	772	811	1,583	-1,246	227	-120	444	-352	92
Other hardwoods	1,270	2,536	3,806	-1,939	876	-147	2,595	-1,332	1,263
Total hardwoods	12,655	48,635	61,290	-15,163	3,572	-1,155	48,544	-27,339	21,205
Total, all species	14,171	50,626	64,796	-17,169	4,058	-1,194	50,492	-28,747	21,745

Table 36. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, South-Central Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Eastern redcedar	856	-131	-28	604	-201	-50
Red pine	0	-11	0	0	0	0
White pine	416	0	0	720	0	0
Virginia pine	713	-963	-1,370	2,601	-3,772	-3,421
Other softwoods	-37	-304	-608	285	-1,256	-1,439
Total softwoods	1,948	-1,408	-2,006	4,209	-5,229	-4,910
Red Maple	5,957	-1,175	-521	16,643	-5,200	-1,454
Sugar maple	5,792	-1,920	-994	15,238	-7,426	-3,907
Hickory	2,360	-2,587	-2,368	9,356	-9,293	-6,779
Beech	1,544	-209	-275	3,593	-1,290	-2,010
White ash	3,519	-1,001	-516	12,721	-3,687	-854
Black walnut	515	-383	-201	2,465	-1,362	-415
Yellow-poplar	6,355	-2,293	-1,513	26,484	-11,626	-5,003
Sycamore	840	-157	-135	3,704	-763	-438
Aspen	422	-13	-343	1,385	-47	-386
Black cherry	2,076	-134	-216	7,302	-632	-249
Select white oaks	6,864	-4,763	-757	29,842	-20,528	-2,163
Select red oaks	1,948	-1,787	-623	7,442	-10,212	-2,486
Other white oaks	2,375	-3,351	-1,264	8,504	-12,330	-4,152
Other red oaks	4,058	-5,527	-1,825	16,689	-23,537	-6,481
Black locust	878	-355	-427	2,413	-604	-564
Elm	444	-352	-1,246	1,387	-789	-1,841
Other hardwoods	2,595	-1,332	-1,939	7,615	-4,264	-2,632
Total hardwoods	48,544	-27,339	-15,163	172,782	-113,590	-41,815
Total, all species	50,492	-28,747	-17,169	176,991	-118,819	-46,725

SOUTHEASTERN UNIT

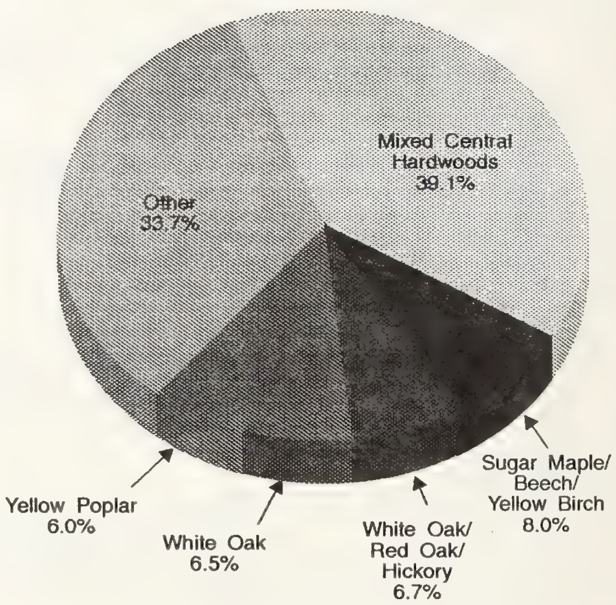
The Southeastern Unit is made up of 7 counties. It is centrally located within the Hill Country. This unit leads the State with approximately 64 percent of the area in timberland. On average, there are approximately 112 trees per acre, 1,380 cubic feet per acre, and 4,315 board feet per acre. These numbers are slightly greater than the State averages.

There were 31 individual forest types recorded. The mixed central hardwoods type is the overwhelming leader with 39 percent of the timberland area. The oak/hickory forests predominate, with nearly 70 percent of the timberland area in this type group. Yellow-poplar is the predominate species group in this unit.

The Southeastern Unit is not as heavily harvested as some other areas within Ohio. The cubic feet ratio is 2.9:1, and the board feet ratio is 2.3:1. The red and sugar maple groups along with white ash have the highest growth to removals ratios.

Similar to the South-Central unit, the more heavily harvested species within this unit—red oak, white oak, and yellow-poplar—are growing at a slightly increased level in relation to the average annual removals. A closer look at the numbers shows that the net annual growth of the select white oaks group is barely staying ahead of the average annual removals.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	CUBIC-FOOT VOLUME			BOARD-FOOT VOLUME		
		Volume/acre	Percent	Ratio[1]	Volume/acre	Percent	Ratio[1]
Red Maple	11.0	90	6.5	8.7 : 1	219	5.1	18.5 : 1
Sugar Maple	9.7	108	7.8	6.4 : 1	311	7.2	4.6 : 1
Hickory	8.7	98	7.1	2.5 : 1	256	6.0	2.7 : 1
White Ash	6.0	58	4.2	6.3 : 1	146	3.4	5.1 : 1
Yellow-poplar	11.4	188	13.7	2.4 : 1	632	14.7	1.8 : 1
Black Cherry	3.9	43	3.1	7.9 : 1	109	2.5	7.9 : 1
Select White Oaks	9.2	159	11.6	1.2 : 1	607	14.1	1.0 : 1
Select Red Oaks	4.4	77	5.6	2.4 : 1	275	6.4	1.7 : 1
Other White Oaks	4.4	83	6.0	1.2 : 1	306	7.1	1.2 : 1
Other Red Oaks	6.0	106	7.7	2.3 : 1	391	9.1	1.8 : 1

[1] Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.

Table 37. Area of timberland by forest type, forest-type group, and stand-size class, Southeastern Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class: Saw-timber	Stand-size class: Pole-timber	Stand-size class: Sapling and seedling	Stand-size class: Non-stocked	All classes	SE
White pine	14.5	.0	.0	.0	14.5	56.2
White/red pine group	14.5	.0	.0	.0	14.5	56.2
Virginia pine	12.8	2.5	8.2	.0	23.4	33.8
Pitch pine	3.5	.0	.0	.0	3.5	100.0
Loblolly/shortleaf group	16.3	2.5	8.2	.0	27.0	32.2
Wh. pine/no.red oak/wh. ash	.0	1.2	.0	.0	1.2	100.0
Shortleaf pine/oak	.0	.0	5.1	.0	5.1	100.0
Virginia pine/oak	6.9	9.0	.0	.0	15.9	46.7
Other oak/pine	9.9	.0	3.5	.0	13.4	58.4
Oak/pine group	16.8	10.2	8.6	.0	35.7	33.3
Post, black, or bear oak	3.2	.0	.0	.0	3.2	100.0
Chestnut oak	27.7	.0	.0	.0	27.7	43.2
White oak/red oak/hickory	51.7	30.6	6.9	.0	89.2	20.5
White oak	52.1	18.5	15.4	.0	86.1	21.9
Northern red oak	10.3	3.5	4.0	.0	17.8	51.6
Y-poplar/wh. oak/no.red oak	33.9	9.5	8.6	.0	52.0	28.9
Black locust	4.5	.0	2.9	.0	7.4	72.3
Black walnut	6.5	.0	.0	.0	6.5	71.0
Yellow-poplar	31.7	29.9	17.9	.0	79.4	22.8
Hawthorn/reverting field	.0	.0	4.5	.0	4.5	100.0
Scarlet oak	3.9	.0	.0	.0	3.9	100.0
Sassafras/persimmon	.0	5.3	4.1	.0	9.4	59.1
Red maple/central hardwood	14.1	5.6	.0	.0	19.8	47.1
Mixed central hardwoods	272.6	129.3	116.2	.0	518.2	7.6
Oak/hickory group	512.2	232.2	180.5	.0	925.0	4.1
Black ash/Amer. elm/red maple	8.2	3.1	14.4	.0	25.8	42.9
River birch/sycamore	7.8	.0	7.0	.0	14.8	48.3
Sycamore/pecan/American elm	31.2	7.5	11.2	.0	49.9	33.3
American elm/green ash	5.7	.0	.0	.0	5.7	100.0
Elm/ash/red maple group	53.0	10.6	32.5	.0	96.1	22.5
Sugar maple/beech/yellow birch	75.6	16.7	13.7	.0	105.9	20.1
Black Cherry	9.9	9.8	.0	.0	19.7	46.5
Red maple/northern hardwoods	3.4	3.5	8.0	.0	14.9	49.2
Pin cherry/reverting field	.0	.0	9.9	.0	9.9	69.5
Mixed northern hardwoods	17.5	35.2	14.4	.0	67.0	23.3
Northern hardwoods group	106.4	65.2	46.1	.0	217.6	13.3
Aspen	.0	8.6	.0	.0	8.6	71.8
Aspen/birch group	.0	8.6	.0	.0	8.6	71.8
All forest types	719.2	329.4	275.9	.0	1,324.5	2.0
SE	5.4	9.9	11.5	.0	2.0	

Table 38. Number of growing-stock trees on timberland by species and diameter class, Southeastern Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	3,649	270	0	0	0	0	0	0
Red pine	0	0	0	0	85	0	0	0
White pine	0	1,072	1,461	795	545	619	452	338
Virginia pine	20,225	2,385	2,217	1,251	1,331	1,088	438	174
Other softwoods	8,492	2,218	1,744	922	316	456	159	86
Total softwoods	32,366	5,945	5,422	2,967	2,277	2,163	1,049	598
Red Maple	490,636	50,838	16,131	6,815	3,729	1,633	1,011	593
Sugar maple	563,218	49,658	14,747	5,003	3,236	1,609	1,196	637
Hickory	210,835	15,089	4,381	3,214	3,242	2,267	1,154	853
Beech	83,018	9,377	1,185	1,024	591	296	458	444
White ash	537,330	20,769	8,515	3,470	1,629	1,152	725	512
Black walnut	15,741	1,500	629	1,771	846	435	336	296
Yellow-poplar	89,001	13,015	7,730	4,327	3,406	2,656	1,660	1,161
Sycamore	6,451	0	875	396	351	419	325	328
Aspen	19,266	6,841	1,198	1,086	1,087	1,297	701	279
Black cherry	359,429	10,465	4,570	1,971	1,153	954	315	388
Select white oaks	105,242	9,834	5,222	2,638	2,170	2,110	1,639	1,305
Select red oaks	108,553	2,724	3,111	1,538	756	1,163	849	561
Other white oaks	52,796	3,861	1,606	784	911	877	1,114	607
Other red oaks	115,844	11,355	2,517	2,055	1,566	1,031	828	874
Black locust	17,306	3,710	1,051	869	315	304	101	26
Elm	358,903	31,529	6,738	4,856	2,851	1,375	512	338
Other hardwoods	1,599,456	136,282	28,728	6,425	3,265	1,858	915	596
Total hardwoods	4,733,025	376,849	108,936	48,239	31,102	21,435	13,840	9,797
Total, all species	4,765,391	382,793	114,359	51,207	33,379	23,599	14,889	10,395
SE	4.8	6.0	6.0	5.0	5.0	5.1	5.1	5.4

Table 38. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	0	0	0	0	0	0	3,919	73.4
Red pine	0	0	0	0	0	85	85	100.0
White pine	114	11	0	0	0	2,873	5,406	53.0
Virginia pine	31	30	0	0	0	4,343	29,170	42.1
Other softwoods	112	12	0	0	0	2,064	14,518	41.3
Total softwoods	257	53	0	0	0	9,365	53,098	28.3
Red Maple	298	204	118	103	5	14,508	572,114	11.7
Sugar maple	544	337	126	154	45	12,887	640,510	11.6
Hickory	388	257	73	56	3	11,508	241,813	10.6
Beech	151	179	165	281	63	3,653	97,232	13.9
White ash	186	133	35	90	9	7,942	574,557	9.0
Black walnut	59	25	21	16	0	3,804	21,674	30.5
Yellow-poplar	897	601	161	237	20	15,125	124,871	17.4
Sycamore	254	159	123	73	27	2,454	9,780	38.2
Aspen	176	33	31	5	0	4,696	32,002	27.8
Black cherry	254	88	16	50	3	5,191	379,656	12.7
Select white oaks	980	640	351	264	95	12,191	132,489	15.9
Select red oaks	317	247	137	261	21	5,850	120,238	16.7
Other white oaks	670	399	259	183	11	5,815	64,077	24.1
Other red oaks	677	426	235	231	47	7,970	137,685	15.5
Black locust	37	22	0	16	4	1,693	23,761	31.8
Elm	177	31	35	30	0	10,205	407,374	15.4
Other hardwoods	271	130	92	52	3	13,608	1,778,073	6.6
Total hardwoods	6,334	3,912	1,978	2,103	357	139,097	5,357,907	4.4
Total, all species	6,591	3,965	1,978	2,103	357	148,462	5,411,005	4.4
SE	6.4	8.6	10.4	10.5	35.2	3.2	4.4	

Table 39. Net volume of sawtimber trees on timberland by species and diameter class, Southeastern Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White pine	25.9	35.1	38.0	21.0	2.0	.0	.0	.0	122.0	57.9
Virginia pine	40.4	28.3	14.8	3.1	4.9	.0	.0	.0	91.5	24.3
Other softwoods	17.9	8.9	8.1	14.6	1.9	.0	.0	.0	51.3	36.9
Total softwoods	84.1	72.3	60.9	38.6	8.8	.0	.0	.0	264.7	27.9
Red Maple	.0	68.6	63.6	46.8	41.4	32.8	29.7	7.3	290.3	19.6
Sugar maple	.0	83.0	72.5	81.2	64.6	30.5	51.9	28.7	412.4	15.7
Hickory	.0	82.3	94.1	67.4	57.0	17.5	17.2	3.8	339.3	14.8
Beech	.0	35.0	47.3	19.2	33.1	40.7	127.6	61.5	364.3	22.9
White ash	.0	49.6	55.8	27.5	24.9	7.6	22.5	5.7	193.6	18.1
Black walnut	.0	21.6	28.7	7.5	3.1	3.8	3.9	.0	68.6	30.0
Yellow-poplar	.0	143.3	155.9	173.5	168.4	54.9	122.4	18.9	837.2	13.0
Sycamore	.0	24.9	38.6	39.3	38.8	28.9	23.7	17.4	211.6	26.0
Aspen	.0	59.6	40.5	33.7	8.2	8.7	1.7	.0	152.4	18.0
Black cherry	.0	21.3	42.4	38.0	17.6	5.9	16.8	1.8	143.8	18.8
Select white oaks	.0	117.9	141.8	146.5	129.2	86.3	90.4	91.4	803.4	12.7
Select red oaks	.0	53.8	58.4	44.5	48.2	33.2	101.7	25.0	364.7	15.5
Other white oaks	.0	66.8	53.3	86.3	73.1	63.3	57.0	5.3	405.1	26.9
Other red oaks	.0	57.2	88.5	101.1	87.3	56.2	80.4	46.7	517.5	14.5
Black locust	.0	4.0	2.7	3.8	1.8	.0	2.4	.4	15.1	33.8
Elm	.0	29.1	29.9	20.0	4.4	7.5	6.6	.0	97.5	17.1
Other hardwoods	.0	56.9	61.6	43.0	25.4	22.6	20.6	2.2	232.3	19.4
Total hardwoods	.0	974.9	1,075.7	979.2	826.4	500.3	776.7	315.9	5,449.1	5.4
Total, all species	84.1	1,047.2	1,136.6	1,017.8	835.2	500.3	776.7	315.9	5,713.8	5.2
SE	21.2	5.4	5.7	6.8	9.3	11.2	12.1	42.7	5.2	

Table 40. Net volume of sawtimber trees on timberland by forest type and stand-size class, Southeastern Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	138.6	.0	.0	.0	138.6	62.3
White/red pine group	138.6	.0	.0	.0	138.6	62.3
Virginia pine	56.1	3.1	.0	.0	59.2	36.7
Pitch pine	11.6	.0	.0	.0	11.6	100.0
Loblolly/shortleaf group	67.6	3.1	.0	.0	70.7	34.8
Wh. pine/no.red oak/wh. ash	.0	3.3	.0	.0	3.3	100.0
Virginia pine/oak	19.6	2.6	.0	.0	22.1	64.3
Other oak/pine	37.9	.0	5.1	.0	43.0	64.1
Oak/pine group	57.5	5.8	5.1	.0	68.4	45.6
Post, black, or bear oak	33.2	.0	.0	.0	33.2	100.0
Chestnut oak	280.3	.0	.0	.0	280.3	48.5
White oak/red oak/hickory	335.6	54.4	3.6	.0	393.5	25.0
White oak	332.7	43.0	60.9	.0	436.7	25.9
Northern red oak	80.3	3.7	.0	.0	84.0	80.0
Y-poplar/wh. oak/no.red oak	220.9	18.9	20.1	.0	259.9	40.0
Black locust	6.6	.0	.0	.0	6.6	100.0
Black walnut	25.8	.0	.0	.0	25.8	90.7
Yellow-poplar	292.0	91.1	20.0	.0	403.0	30.7
Scarlet oak	37.5	.0	.0	.0	37.5	100.0
Sassafras/persimmon	.0	16.6	.0	.0	16.6	100.0
Red maple/central hardwood	117.8	2.1	.0	.0	119.9	62.2
Mixed central hardwoods	1,855.5	324.4	108.0	.0	2,287.9	11.2
Oak/hickory group	3,618.1	554.1	212.6	.0	4,384.8	7.2
Black ash/Amer. elm/red maple	15.7	1.5	9.5	.0	26.7	55.0
River birch/sycamore	30.4	.0	19.9	.0	50.3	49.4
Sycamore/pecan/American elm	148.5	15.1	24.5	.0	188.1	36.9
American elm/green ash	2.5	.0	.0	.0	2.5	100.0
Elm/ash/red maple group	197.1	16.6	53.9	.0	267.7	27.9
Sugar maple/beech/yellow birch	437.2	24.2	28.8	.0	490.1	23.0
Black Cherry	46.4	30.2	.0	.0	76.6	47.6
Red maple/northern hardwoods	19.5	6.0	7.2	.0	32.6	63.5
Mixed northern hardwoods	99.8	52.7	4.8	.0	157.4	39.5
Northern hardwoods group	602.8	113.2	40.8	.0	756.7	17.5
Aspen	.0	26.8	.0	.0	26.8	83.8
Aspen/birch group	.0	26.8	.0	.0	26.8	83.8
All forest types	4,681.8	719.6	312.4	.0	5,713.8	5.2
SE	7.1	12.8	18.6	.0	5.2	

Table 41. Net volume of growing-stock trees on timberland by species and diameter class, Southeastern Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.5	100.0
White pine	2.2	3.6	7.7	8.6	8.4	4.3	.4	.0	.0	.0	35.3	54.3
Virginia pine	3.7	7.7	11.5	7.0	3.7	.7	1.1	.0	.0	.0	35.5	21.6
Other softwoods	2.6	1.9	5.0	2.3	1.9	3.3	.4	.0	.0	.0	17.4	33.2
Total softwoods	8.5	13.7	24.3	18.0	14.0	8.4	2.0	.0	.0	.0	88.8	23.5
Red Maple	15.9	21.9	17.7	16.8	14.6	10.4	8.3	6.3	5.8	1.4	119.1	11.9
Sugar maple	13.2	20.0	18.2	20.4	16.2	18.0	14.1	6.3	11.8	4.9	143.0	12.8
Hickory	7.0	21.4	26.7	20.1	21.4	14.2	11.1	3.5	3.2	.6	129.2	11.3
Beech	1.9	3.0	3.0	8.6	10.9	4.7	6.9	8.6	23.4	11.2	82.2	20.4
White ash	9.3	10.8	12.8	11.9	12.9	6.4	5.5	1.6	5.0	1.2	77.2	14.6
Black walnut	4.4	4.1	4.5	5.0	6.2	1.5	.7	.8	.8	.0	28.0	20.3
Yellow-poplar	12.3	25.8	36.6	34.9	34.2	36.3	32.9	10.7	22.3	3.4	249.4	11.7
Sycamore	1.2	2.2	4.7	5.7	8.6	8.3	7.5	5.8	4.5	3.5	52.2	23.5
Aspen	4.0	9.3	19.3	14.1	8.1	7.0	1.5	1.7	.3	.0	65.5	16.9
Black cherry	6.2	7.7	11.6	5.8	9.8	7.8	3.9	1.1	3.2	.4	57.4	15.0
Select white oaks	6.5	12.5	24.4	28.2	31.4	30.7	26.4	17.6	17.6	15.9	211.2	11.6
Select red oaks	4.3	5.2	12.6	14.1	13.9	9.8	10.3	7.1	20.2	4.3	101.8	13.1
Other white oaks	2.5	5.2	9.4	16.9	13.4	19.8	16.1	13.2	12.3	1.2	110.0	23.1
Other red oaks	5.0	9.5	11.7	14.2	21.1	22.5	18.5	12.5	16.6	8.8	140.5	12.5
Black locust	1.8	1.7	2.5	1.1	.6	1.0	.4	.0	.8	.1	10.0	24.5
Elm	12.0	14.2	11.8	7.1	7.2	4.2	1.0	1.6	1.7	.0	60.9	12.4
Other hardwoods	14.2	17.1	18.3	13.7	14.0	8.6	5.2	4.5	3.7	.4	99.8	13.0
Total hardwoods	121.5	191.6	245.7	238.6	244.5	211.2	170.5	102.9	153.2	57.3	1,737.0	3.9
Total, all species	130.0	205.3	270.0	256.6	258.5	219.5	172.4	102.9	153.2	57.3	1,825.8	3.8
SE	5.1	5.3	5.6	5.3	5.5	6.8	9.1	11.1	12.1	42.1	3.8	

Table 42. Net volume of growing-stock trees on timberland by forest type and stand-size class, Southeastern Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
White pine	46.0	.0	.0	.0	46.0	61.1
White/red pine group	46.0	.0	.0	.0	46.0	61.1
Virginia pine	21.1	2.1	.4	.0	23.7	35.0
Pitch pine	5.6	.0	.0	.0	5.6	100.0
Loblolly/shortleaf group	26.7	2.1	.4	.0	29.2	34.1
Wh. pine/no.red oak/wh. ash	.0	1.6	.0	.0	1.6	100.0
Shortleaf pine/oak	.0	.0	.1	.0	.1	100.0
Virginia pine/oak	6.4	4.4	.0	.0	10.8	49.9
Other oak/pine	14.6	.0	1.8	.0	16.3	64.5
Oak/pine group	21.0	6.0	1.9	.0	28.9	41.3
Post, black, or bear oak	8.3	.0	.0	.0	8.3	100.0
Chestnut oak	71.9	.0	.0	.0	71.9	47.6
White oak/red oak/hickory	90.6	37.8	2.1	.0	130.5	22.2
White oak	90.4	20.6	15.2	.0	126.3	24.2
Northern red oak	20.3	2.2	.8	.0	23.4	71.0
Y-poplar/wh. oak/no.red oak	59.9	9.1	6.4	.0	75.5	34.5
Black locust	4.0	.0	.0	.0	4.0	100.0
Black walnut	7.3	.0	.0	.0	7.3	91.5
Yellow-poplar	77.4	47.7	11.8	.0	136.9	26.4
Scarlet oak	9.9	.0	.0	.0	9.9	100.0
Sassafras/persimmon	.0	7.9	.9	.0	8.8	86.3
Red maple/central hardwood	29.8	3.0	.0	.0	32.8	57.2
Mixed central hardwoods	522.0	150.4	49.1	.0	721.5	9.4
Oak/hickory group	991.9	278.7	86.4	.0	1,357.1	5.8
Black ash/Amer. elm/red maple	7.4	.4	7.5	.0	15.3	49.1
River birch/sycamore	8.9	.0	6.3	.0	15.1	49.6
Sycamore/pecan/American elm	40.1	8.1	9.0	.0	57.3	35.0
American elm/green ash	.6	.0	.0	.0	.6	100.0
Elm/ash/red maple group	56.9	8.5	22.7	.0	88.2	25.5
Sugar maple/beech/yellow birch	129.1	11.6	9.3	.0	150.1	22.4
Black Cherry	15.0	13.6	.0	.0	28.6	46.9
Red maple/northern hardwoods	4.0	4.2	5.6	.0	13.8	52.0
Mixed northern hardwoods	28.3	36.5	2.3	.0	67.1	33.3
Northern hardwoods group	176.4	66.0	17.3	.0	259.7	16.2
Aspen	.0	16.7	.0	.0	16.7	74.4
Aspen/birch group	.0	16.7	.0	.0	16.7	74.4
All forest types	1,318.9	378.1	128.8	.0	1,825.8	3.8
SE	6.3	11.5	15.5	.0	3.8	

Table 43. Average annual net change of growing-stock volume on timberland by species and component of change, Southeastern Unit, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Red pine	0	9	9	-9	0	-25	-25	0	-25
White pine	523	1,524	2,047	-38	0	-43	1,966	-40	1,926
Virginia pine	395	792	1,188	-966	91	0	312	-80	232
Other softwoods	111	323	434	-167	14	0	281	-52	229
Total softwoods	1,029	2,648	3,677	-1,180	105	-67	2,535	-172	2,363
Red Maple	1,753	3,075	4,827	-382	688	-143	4,991	-581	4,409
Sugar maple	1,341	3,734	5,075	-156	757	-69	5,606	-1,067	4,540
Hickory	836	2,559	3,395	-1,132	301	-59	2,504	-1,079	1,425
Beech	173	1,449	1,622	-256	691	-88	1,969	-579	1,390
White ash	1,037	1,746	2,783	-319	374	-5	2,833	-451	2,383
Black walnut	371	423	794	-264	113	0	643	-606	37
Yellow-poplar	1,660	7,276	8,936	-843	219	-19	8,294	-3,508	4,786
Sycamore	324	1,048	1,372	-82	94	0	1,384	-372	1,013
Aspen	328	2,098	2,426	-965	33	0	1,494	-312	1,182
Black cherry	579	1,656	2,235	-181	472	-6	2,520	-329	2,191
Select white oaks	403	4,668	5,071	-582	609	-31	5,067	-4,106	961
Select red oaks	357	3,079	3,436	-505	143	0	3,074	-1,305	1,769
Other white oaks	181	1,966	2,147	-430	100	0	1,816	-1,556	260
Other red oaks	640	3,769	4,409	-1,124	49	0	3,334	-1,448	1,886
Black locust	257	117	375	-320	180	-32	202	-199	3
Elm	952	1,380	2,332	-1,211	395	-25	1,492	-558	934
Other hardwoods	877	2,116	2,992	-668	801	-71	3,054	-578	2,476
Total hardwoods	12,072	42,158	54,230	-9,421	6,020	-549	50,279	-18,635	31,644
Total, all species	13,101	44,806	57,907	-10,601	6,125	-617	52,814	-18,807	34,007

Table 44. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, Southeastern Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Red pine	-25	0	-9	0	0	0
White pine	1,966	-40	-38	8,783	0	0
Virginia pine	312	-80	-966	1,934	-153	-2,140
Other softwoods	281	-52	-167	1,171	-211	-281
Total softwoods	2,535	-172	-1,180	11,888	-364	-2,421
Red Maple	4,991	-581	-382	12,416	-667	-617
Sugar maple	5,606	-1,067	-156	18,997	-4,861	-256
Hickory	2,504	-1,079	-1,132	8,425	-3,101	-2,696
Beech	1,969	-579	-256	6,237	-3,244	-1,329
White ash	2,833	-451	-319	9,761	-1,913	-981
Black walnut	643	-606	-264	1,721	-2,656	-787
Yellow-poplar	8,294	-3,508	-843	28,808	-16,586	-1,720
Sycamore	1,384	-372	-82	6,915	-2,098	-354
Aspen	1,494	-312	-965	6,689	-829	-1,592
Black cherry	2,520	-329	-181	8,262	-1,069	-411
Select white oaks	5,067	-4,106	-582	22,695	-22,072	-1,645
Select red oaks	3,074	-1,305	-505	12,744	-7,731	-1,769
Other white oaks	1,816	-1,556	-430	8,217	-6,940	-1,372
Other red oaks	3,334	-1,448	-1,124	13,996	-7,920	-3,374
Black locust	202	-199	-320	-238	-186	-885
Elm	1,492	-558	-1,211	2,803	-1,570	-2,572
Other hardwoods	3,054	-578	-668	8,713	-1,560	-328
Total hardwoods	50,279	-18,635	-9,421	177,162	-85,003	-22,688
Total, all species	52,814	-18,807	-10,601	189,050	-85,368	-25,108

EAST-CENTRAL UNIT

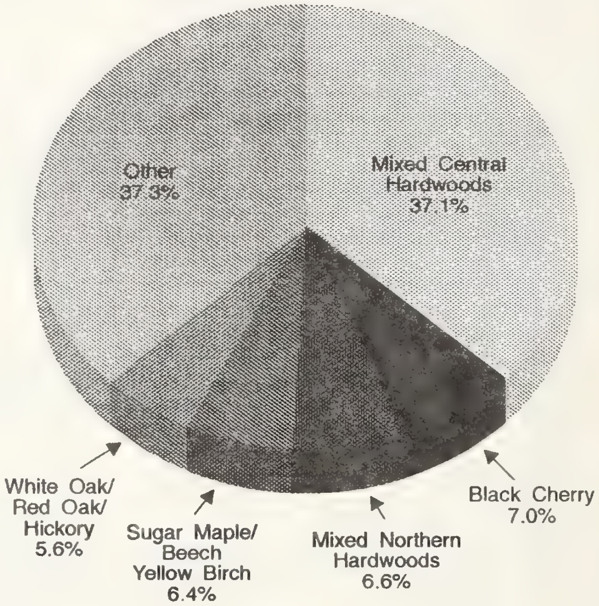
The East-Central Unit is made up of 11 counties. It is the northern most unit of the Hill Country. Just under 51 percent of the area is in timberland. On the average, there are approximately 113 trees per acre, 1,280 cubic feet per acre, and 3,735 board feet per acre. These numbers are less than the State averages due mainly to the larger percent of seedling and saplings stands.

There were 32 individual forest types recorded. The mixed central hardwoods type is the majority leader with 37 percent of the timberland area. The oak/hickory forests predominate, with nearly 60 percent of the timberland area in this type group. The predominate species groups in this unit are the red maples and yellow-poplar.

The low average growth to removals ratios are explained by timber harvesting and clearing for strip mining. The cubic feet ratio is 2.3:1, and the board feet ratio is 1.8:1. Yellow-poplar and the maples have some of the highest growth to removals ratios.

Of possible future significance, both the white oak and red oak species groups show negative net annual growth to removals ratios for sawtimber. In the case of the select white oaks group, nearly twice as much volume is being removed than is growing on an annual basis. The growing-stock ratio for these groups as a whole is slightly positive.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	CUBIC-FOOT VOLUME Volume/acre	Percent	Ratio[1]	BOARD-FOOT VOLUME Volume/acre	Percent	Ratio[1]
Red Maple	16.0	137	10.7	4.4 : 1	304	8.1	2.8 : 1
Sugar Maple	7.5	82	6.4	4.7 : 1	224	6.0	5.8 : 1
Hickory	7.0	86	6.7	3.1 : 1	233	6.2	3.9 : 1
White Ash	6.2	69	5.4	2.0 : 1	202	5.4	2.4 : 1
Yellow-poplar	10.2	180	14.0	4.7 : 1	641	17.2	3.2 : 1
Black Cherry	12.1	116	9.1	1.7 : 1	301	8.1	1.4 : 1
Select White Oaks	4.6	66	5.2	(0.8 : 1)	226	6.0	(0.5 : 1)
Select Red Oaks	4.2	72	5.6	1.3 : 1	248	6.6	(0.9 : 1)
Other Red Oaks	3.8	79	6.2	1.1 : 1	289	7.7	(0.8 : 1)
White Pine	3.6	37	2.9	2.4 : 1	119	3.2	3.1 : 1

[1] Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.

Table 45. Area of timberland by forest type, forest-type group, and stand-size class, East-Central Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	3.6	.0	6.7	.0	10.3	73.8
White pine	7.6	7.0	16.1	.0	30.7	41.3
Scotch pine	.0	7.3	3.5	.0	10.7	75.0
White/red pine group	11.2	14.3	26.2	.0	51.7	32.3
Virginia pine	.0	7.2	.0	.0	7.2	100.0
Loblolly/shortleaf group	.0	7.2	.0	.0	7.2	100.0
Wh. pine/no.red oak/wh. ash	20.4	9.7	.0	.0	30.0	45.6
Oak/pine group	20.4	9.7	.0	.0	30.0	45.6
Post, black, or bear oak	20.5	11.9	.0	.0	32.4	41.1
Chestnut oak	10.5	.0	.0	.0	10.5	70.7
White oak/red oak/hickory	52.3	26.9	18.0	.0	97.2	23.9
White oak	14.1	.0	1.6	.0	15.7	50.5
Northern red oak	.0	.0	1.6	.0	1.6	100.0
Y-poplar/wh. oak/no.red oak	38.3	.0	3.5	.0	41.7	40.6
Black locust	12.7	1.8	25.4	4.7	44.6	30.6
Black walnut	.0	2.1	9.1	.0	11.1	64.1
Yellow-poplar	41.8	23.0	10.8	.0	75.6	26.4
Hawthorn/reverting field	.0	.0	9.7	.0	9.7	70.9
Scarlet oak	.0	.0	4.2	.0	4.2	100.0
Sassafras/persimmon	.0	.0	8.0	.0	8.0	60.1
Red maple/central hardwood	27.8	1.4	6.5	.0	35.7	38.6
Mixed central hardwoods	393.6	142.5	108.9	.0	644.9	7.6
Oak/hickory group	611.6	209.6	207.3	4.7	1,033.2	4.7
Black ash/Amer. elm/red maple	26.2	36.2	33.5	.0	96.0	22.3
Red maple(upland)	7.2	8.1	9.4	.0	24.8	50.5
River birch/sycamore	.0	8.3	2.7	.0	11.0	58.7
Cottonwood	.0	2.7	9.7	.0	12.4	63.3
Willow	.0	.0	6.6	.0	6.6	100.0
Sycamore/pecan/American elm	13.0	.0	4.5	.0	17.5	50.5
American elm/green ash	1.3	.0	.0	.0	1.3	100.0
Elm/ash/red maple group	47.8	55.3	66.6	.0	169.6	16.9
Sugar maple/beech/yellow birch	78.8	1.6	31.5	.0	112.0	21.4
Black Cherry	49.6	34.7	37.3	.0	121.6	19.2
Red maple/northern hardwoods	6.3	27.2	7.3	.0	40.8	35.9
Pin cherry/reverting field	.0	.0	30.7	.0	30.7	41.5
Mixed northern hardwoods	41.2	36.1	37.8	.0	115.1	19.9
Northern hardwoods group	175.9	99.7	144.7	.0	420.3	9.7
Aspen	.0	7.3	17.2	.0	24.6	42.2
Aspen/birch group	.0	7.3	17.2	.0	24.6	42.2
All forest types	866.8	403.1	462.1	4.7	1,736.7	2.2
SE	5.4	10.5	8.8	100.0	2.2	

Table 46. Number of growing-stock trees on timberland by species and diameter class, East-Central Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Red pine	0	0	951	1,167	849	193	121	14
White pine	1,548	3,469	2,529	2,352	1,257	1,253	628	598
Virginia pine	0	0	0	361	649	397	108	0
Other softwoods	0	1,135	370	1,183	678	122	32	0
Total softwoods	1,548	4,604	3,850	5,063	3,433	1,964	888	612
Red Maple	457,854	75,672	24,033	11,192	7,148	4,276	2,452	1,225
Sugar maple	413,768	37,554	7,999	4,791	3,349	1,914	1,094	719
Hickory	200,462	15,245	5,634	3,293	2,773	2,719	1,624	710
Beech	104,527	10,665	3,829	1,036	699	629	475	476
White ash	681,715	21.417	7,486	3,928	2,705	1,383	1,219	589
Black walnut	13,237	891	1,389	1,512	998	857	637	286
Yellow-poplar	72,435	16,610	7,181	4,684	3,423	3,015	2,229	1,942
Sycamore	0	0	847	385	256	455	177	62
Aspen	8,593	3,854	1,354	2,401	1,583	2,115	1,211	619
Black cherry	905,678	53,950	19,388	8,996	4,544	2,880	1,813	1,412
Select white oaks	53,429	2,999	1,745	2,415	1,652	1,443	620	587
Select red oaks	124,909	8,163	3,647	1,688	1,708	1,202	943	510
Other white oaks	44,401	5,250	481	593	381	375	385	107
Other red oaks	75,453	10,069	3,087	1,113	1,372	1,045	697	611
Black locust	44,216	14,416	9,154	2,751	868	909	561	327
Elm	484,332	61,110	21,381	10,203	4,460	2,681	1,555	959
Other hardwoods	1,610,184	123,033	25,853	6,332	2,392	1,365	912	629
Total hardwoods	5,295,196	460,900	144,488	67,314	40,311	29,265	18,605	11,771
Total, all species	5,296,744	465,504	148,338	72,377	43,745	31,229	19,493	12,383
SE	5.4	5.8	6.3	5.5	5.4	5.0	5.1	6.3

Table 46. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Red pine	31	16	0	0	0	2,391	3,341	78.7
White pine	205	30	13	0	0	6,335	13,882	30.8
Virginia pine	0	0	0	0	0	1,515	1,515	100.0
Other softwoods	0	0	0	0	0	2,014	3,519	48.0
Total softwoods	236	46	13	0	0	12,256	22,258	27.1
Red Maple	622	376	178	230	17	27,717	585,276	12.5
Sugar maple	542	233	223	241	4	13,110	472,432	14.3
Hickory	542	391	58	88	4	12,203	233,544	10.2
Beech	292	191	101	307	38	4,245	123,266	22.1
White ash	403	231	133	179	12	10,784	721,402	12.4
Black walnut	99	139	105	7	0	4,641	20,159	32.7
Yellow-poplar	1,025	537	533	342	17	17,746	113,973	16.6
Sycamore	121	47	40	51	7	1,603	2,449	33.6
Aspen	336	41	43	27	7	8,384	22,185	22.8
Black cherry	593	286	181	136	2	20,843	999,859	9.2
Select white oaks	491	244	153	243	97	7,946	66,120	17.9
Select red oaks	366	240	266	313	49	7,285	144,005	18.5
Other white oaks	166	152	45	12	0	2,217	52,350	45.5
Other red oaks	679	410	239	430	45	6,642	95,251	19.9
Black locust	212	62	70	35	0	5,795	73,582	21.4
Elm	385	237	38	104	71	20,692	587,514	11.6
Other hardwoods	352	303	80	159	0	12,525	1,771,596	8.8
Total hardwoods	7,228	4,121	2,487	2,906	370	184,379	6,084,964	4.9
Total, all species	7,463	4,167	2,500	2,906	370	196,635	6,107,222	4.8
SE	6.8	9.1	10.6	9.3	20.8	3.5	4.8	

Table 47. Net volume of sawtimber trees on timberland by species and diameter class, East-Central Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	6.4	9.9	1.5	5.2	3.2	.0	.0	.0	26.2	79.0
White pine	47.0	48.5	67.7	32.5	6.6	3.6	.0	.0	205.9	34.5
Virginia pine	14.8	7.3	.0	.0	.0	.0	.0	.0	22.1	100.0
Other softwoods	3.2	1.3	.0	.0	.0	.0	.0	.0	4.5	62.7
Total softwoods	71.4	67.0	69.2	37.7	9.8	3.6	.0	.0	258.7	29.9
Red Maple	.0	147.8	119.6	77.8	68.3	37.8	69.0	7.3	527.5	15.0
Sugar maple	.0	68.4	70.7	68.6	48.4	55.8	74.3	2.8	389.0	17.4
Hickory	.0	115.0	74.5	82.9	82.8	15.2	32.8	1.6	404.7	14.0
Beech	.0	30.3	50.9	42.0	36.5	21.5	105.0	28.7	315.0	17.2
White ash	.0	84.9	55.5	53.4	51.2	35.5	65.0	5.4	350.9	20.1
Black walnut	.0	37.7	26.4	12.5	18.3	23.7	.8	.0	119.4	25.6
Yellow-poplar	.0	179.3	258.3	195.8	126.7	169.6	166.9	17.3	1,113.9	14.1
Sycamore	.0	10.9	7.8	19.5	10.1	9.7	21.0	4.9	84.0	33.1
Aspen	.0	97.0	75.3	57.5	8.9	11.5	9.8	5.3	265.3	18.1
Black cherry	.0	133.3	152.2	84.6	55.3	48.4	47.9	1.3	523.0	14.8
Select white oaks	.0	37.0	57.2	72.5	47.8	35.3	91.1	51.9	392.8	15.0
Select red oaks	.0	53.5	47.9	50.2	45.1	62.4	129.3	42.2	430.5	16.0
Other white oaks	.0	19.1	8.9	18.3	24.6	8.5	2.8	.0	82.2	36.3
Other red oaks	.0	45.5	56.7	92.8	83.4	54.7	141.9	27.1	502.1	21.7
Black locust	.0	29.3	28.2	23.6	10.0	10.7	6.9	.0	108.7	24.7
Elm	.0	84.7	86.6	51.4	38.7	9.5	39.0	44.2	354.1	16.0
Other hardwoods	.0	49.2	53.3	41.7	46.7	19.9	55.0	.0	265.8	22.2
Total hardwoods	.0	1,222.9	1,229.8	1,045.0	802.8	629.8	1,058.5	239.9	6,228.7	5.2
Total, all species	71.4	1,289.9	1,299.1	1,082.7	812.6	633.4	1,058.5	239.9	6,487.5	5.2
SE	32.8	5.3	7.2	7.3	9.3	12.0	10.2	21.9	5.2	

Table 48. Net volume of sawtimber trees on timberland by forest type and stand-size class, East-Central Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	44.0	.0	.0	.0	44.0	100.0
White pine	42.2	13.1	32.2	.0	87.5	52.8
White/red pine group	86.2	13.1	32.2	.0	131.6	47.1
Virginia pine	.0	25.6	.0	.0	25.6	100.0
Loblolly/shortleaf group	.0	25.6	.0	.0	25.6	100.0
Wh. pine/no.red oak/wh. ash	243.0	10.4	.0	.0	253.4	59.2
Oak/pine group	243.0	10.4	.0	.0	253.4	59.2
Post, black, or bear oak	193.6	14.8	.0	.0	208.4	57.6
Chestnut oak	39.7	.0	.0	.0	39.7	72.5
White oak/red oak/hickory	334.6	61.5	28.1	.0	424.2	31.7
White oak	109.5	.0	.0	.0	109.5	54.9
Northern red oak	.0	.0	2.3	.0	2.3	100.0
Y-poplar/wh. oak/no.red oak	312.4	.0	.0	.0	312.4	52.9
Black locust	39.4	1.5	.9	.0	41.8	54.8
Black walnut	.0	.0	3.8	.0	3.8	76.8
Yellow-poplar	331.1	39.8	30.5	.0	401.4	37.3
Hawthorn/reverting field	.0	.0	2.4	.0	2.4	100.0
Scarlet oak	.0	.0	1.4	.0	1.4	100.0
Red maple/central hardwood	140.9	.3	7.3	.0	148.6	56.1
Mixed central hardwoods	2,321.7	283.8	119.9	.0	2,725.3	9.8
Oak/hickory group	3,822.8	401.7	196.6	.0	4,421.1	7.4
Black ash/Amer. elm/red maple	103.2	46.6	9.7	.0	159.5	33.5
Red maple(upland)	49.7	22.9	.0	.0	72.5	75.4
River birch/sycamore	.0	9.0	.3	.0	9.3	69.5
Cottonwood	.0	6.3	22.5	.0	28.8	79.1
Sycamore/pecan/American elm	61.4	.0	4.9	.0	66.3	62.7
American elm/green ash	1.8	.0	.0	.0	1.8	100.0
Elm/ash/red maple group	216.0	84.8	37.4	.0	338.2	26.2
Sugar maple/beech/yellow birch	434.2	3.5	56.1	.0	493.8	24.1
Black Cherry	230.0	52.6	3.6	.0	286.2	31.3
Red maple/northern hardwoods	45.6	38.3	4.2	.0	88.1	55.9
Pin cherry/reverting field	.0	.0	1.0	.0	1.0	100.0
Mixed northern hardwoods	299.3	73.5	25.1	.0	397.9	33.8
Northern hardwoods group	1,009.1	167.9	90.0	.0	1,266.9	15.8
Aspen	.0	14.1	36.6	.0	50.7	51.2
Aspen/birch group	.0	14.1	36.6	.0	50.7	51.2
All forest types	5,377.2	717.5	392.8	.0	6,487.5	5.2
SE	6.8	12.8	18.2	.0	5.2	

Table 49. Net volume of growing-stock trees on timberland by species and diameter class, East-Central Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	4.3	4.7	2.0	2.2	.3	1.0	.7	.0	.0	.0	15.3	61.0
White pine	6.9	8.6	13.7	11.9	15.2	6.6	1.3	.7	.0	.0	64.9	31.5
Virginia pine	1.3	4.5	4.3	1.9	.0	.0	.0	.0	.0	.0	12.0	100.0
Other softwoods	2.9	3.5	1.1	.4	.0	.0	.0	.0	.0	.0	7.8	52.6
Total softwoods	15.4	21.3	21.1	16.3	15.6	7.6	1.9	.7	.0	.0	100.1	27.4
Red Maple	27.0	39.8	43.0	40.2	28.5	19.1	14.8	8.2	15.4	1.5	237.6	11.1
Sugar maple	12.1	19.9	21.4	17.6	17.0	16.2	10.8	11.2	15.9	.4	142.5	14.9
Hickory	7.6	17.8	31.8	29.2	17.9	18.5	16.2	3.4	6.6	.4	149.4	12.7
Beech	2.6	4.6	5.9	7.7	11.8	8.9	8.1	4.4	21.7	5.2	81.0	16.6
White ash	9.4	14.5	15.3	21.5	13.7	13.5	10.7	7.3	13.7	1.1	120.6	15.1
Black walnut	3.4	5.2	8.4	9.5	6.2	2.5	4.5	5.3	.3	.0	45.3	18.4
Yellow-poplar	12.1	21.9	41.2	44.0	56.7	41.7	27.1	33.7	31.1	2.9	312.5	12.3
Sycamore	1.0	1.8	5.7	3.2	1.7	4.0	2.0	2.2	4.3	.9	26.8	24.3
Aspen	8.0	11.3	27.7	23.9	16.5	12.0	1.9	2.3	1.9	1.1	106.5	15.2
Black cherry	21.2	28.5	30.6	32.5	35.9	19.2	12.3	10.0	10.1	.3	200.6	10.2
Select white oaks	6.2	9.4	14.7	10.2	13.7	15.8	9.9	7.5	17.4	10.3	115.2	12.8
Select red oaks	5.0	10.2	12.7	15.5	12.1	12.0	10.1	13.9	25.4	7.8	124.8	12.3
Other white oaks	1.2	2.0	3.4	5.3	2.3	4.5	5.5	2.0	.7	.0	27.0	32.2
Other red oaks	3.4	8.5	11.4	12.5	14.9	21.8	17.9	11.9	29.9	4.9	137.1	18.0
Black locust	5.3	3.9	7.5	7.6	6.4	5.7	1.9	2.4	1.3	.0	42.0	18.6
Elm	24.4	24.1	26.1	22.8	21.1	11.1	8.8	2.0	7.9	8.5	156.7	11.0
Other hardwoods	14.4	12.5	12.9	13.2	13.1	9.3	10.0	4.1	10.9	.0	100.5	15.3
Total hardwoods	164.4	235.8	319.8	316.4	289.6	235.7	172.6	132.0	214.5	45.1	2,126.0	3.8
Total, all species	179.9	257.1	340.9	332.7	305.2	243.3	174.5	132.7	214.5	45.1	2,226.0	3.7
SE	6.0	5.5	5.2	5.3	6.8	7.0	9.0	11.4	10.0	20.5	3.7	

Table 50. Net volume of growing-stock trees on timberland by forest type and stand-size class, East-Central Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	12.0	.0	.0	.0	12.0	100.0
White pine	13.4	16.5	12.5	.0	42.5	50.8
Scotch pine	.0	6.1	2.0	.0	8.1	79.6
White/red pine group	25.5	22.7	14.4	.0	62.6	40.1
Virginia pine	.0	13.7	.0	.0	13.7	100.0
Loblolly/shortleaf group	.0	13.7	.0	.0	13.7	100.0
Wh. pine/no.red oak/wh. ash	62.3	8.4	.0	.0	70.7	53.5
Oak/pine group	62.3	8.4	.0	.0	70.7	53.5
Post, black, or bear oak	49.6	9.0	.0	.0	58.6	50.5
Chestnut oak	15.0	.0	.0	.0	15.0	71.7
White oak/red oak/hickory	92.3	36.0	10.2	.0	138.5	27.5
White oak	26.6	.0	.1	.0	26.7	52.2
Northern red oak	.0	.0	.5	.0	.5	100.0
Y-poplar/wh. oak/no.red oak	90.3	.0	1.6	.0	91.9	47.7
Black locust	13.0	1.4	1.3	.0	15.7	49.2
Black walnut	.0	.4	.9	.0	1.3	59.2
Yellow-poplar	98.1	26.0	8.3	.0	132.4	31.6
Hawthorn/reverting field	.0	.0	1.0	.0	1.0	80.1
Scarlet oak	.0	.0	.4	.0	.4	100.0
Sassafras/persimmon	.0	.0	.3	.0	.3	100.0
Red maple/central hardwood	48.1	1.1	3.4	.0	52.6	51.1
Mixed central hardwoods	682.2	159.4	54.5	.0	896.1	8.8
Oak/hickory group	1,115.2	233.4	82.4	.0	1,431.1	6.2
Black ash/Amer. elm/red maple	31.2	36.6	10.9	.0	78.7	26.3
Red maple(upland)	15.2	13.1	.9	.0	29.2	66.3
River birch/sycamore	.0	8.9	1.8	.0	10.7	61.6
Cottonwood	.0	3.8	8.1	.0	11.8	70.0
Willow	.0	.0	.2	.0	.2	100.0
Sycamore/pecan/American elm	18.5	.0	1.7	.0	20.2	63.4
American elm/green ash	.8	.0	.0	.0	.8	100.0
Elm/ash/red maple group	65.7	62.3	23.6	.0	151.6	21.4
Sugar maple/beech/yellow birch	133.8	1.4	27.7	.0	162.9	23.1
Black Cherry	71.1	34.2	9.4	.0	114.7	25.3
Red maple/northern hardwoods	16.0	26.7	2.8	.0	45.5	44.3
Pin cherry/reverting field	.0	.0	.7	.0	.7	100.0
Mixed northern hardwoods	92.0	36.0	15.9	.0	143.9	27.6
Northern hardwoods group	312.9	98.3	56.5	.0	467.7	13.2
Aspen	.0	9.6	19.1	.0	28.7	42.2
Aspen/birch group	.0	9.6	19.1	.0	28.7	42.2
All forest types	1,581.6	448.3	196.1	.0	2,226.0	3.7
SE	6.2	11.9	13.6	.0	3.7	

Table 51. Average annual net change of growing-stock volume on timberland by species and component of change, East-Central Unit, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Red pine	210	321	531	-49	0	0	481	-37	444
White pine	1,560	1,460	3,020	-129	31	0	2,922	-1,219	1,703
Virginia pine	29	467	496	-212	0	0	284	0	284
Other softwoods	223	148	371	-36	9	0	345	0	345
Total softwoods	2,022	2,396	4,419	-425	40	0	4,033	-1,257	2,776
Red Maple	3,049	5,325	8,374	-1,019	842	-203	7,995	-1,790	6,205
Sugar maple	803	3,034	3,838	-554	470	-269	3,484	-735	2,749
Hickory	428	2,847	3,275	-747	279	-24	2,783	-885	1,898
Beech	259	1,343	1,601	-459	843	-134	1,851	-1,684	167
White ash	1,032	2,848	3,880	-718	398	-45	3,515	-1,740	1,774
Black walnut	303	725	1,028	-311	273	-88	903	-476	426
Yellow-poplar	2,305	10,641	12,946	-974	406	0	12,378	-2,605	9,773
Sycamore	234	764	998	-28	33	0	1,003	-391	612
Aspen	945	3,007	3,952	-1,357	0	-21	2,574	-1,300	1,274
Black cherry	2,250	4,332	6,582	-2,057	1,356	-39	5,841	-3,517	2,324
Select white oaks	379	2,508	2,888	-515	288	-47	2,613	-3,245	-632
Select red oaks	645	3,389	4,034	-832	111	-28	3,285	-2,517	768
Other white oaks	124	595	719	-64	0	0	655	-523	132
Other red oaks	379	3,357	3,736	-465	270	-75	3,466	-3,172	294
Black locust	539	678	1,218	-1,185	275	-267	41	-545	-504
Elm	2,132	3,682	5,814	-1,705	443	-121	4,430	-809	3,621
Other hardwoods	1,391	1,760	3,151	-586	427	-159	2,834	-985	1,849
Total hardwoods	17,197	50,837	68,034	-13,577	6,715	-1,521	59,652	-26,921	32,731
Total, all species	19,219	53,233	72,453	-14,003	6,755	-1,521	63,685	-28,177	35,507

Table 52. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, East-Central Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Red pine	481	-37	-49	753	0	0
White pine	2,922	-1,219	-129	10,715	-3,403	-384
Virginia pine	284	0	-212	1,922	0	0
Other softwoods	345	0	-36	187	0	0
Total softwoods	4,033	-1,257	-425	13,578	-3,403	-384
Red Maple	7,995	-1,790	-1,019	17,796	-6,218	-2,940
Sugar maple	3,484	-735	-554	10,254	-1,748	-1,144
Hickory	2,783	-885	-747	10,275	-2,621	-1,900
Beech	1,851	-1,684	-459	3,851	-10,710	-2,931
White ash	3,515	-1,740	-718	13,677	-5,786	-1,957
Black walnut	903	-476	-311	3,670	-1,817	-411
Yellow-poplar	12,378	-2,605	-974	48,236	-14,682	-3,183
Sycamore	1,003	-391	-28	2,760	-1,917	-145
Aspen	2,574	-1,300	-1,357	12,607	-2,605	-1,084
Black cherry	5,841	-3,517	-2,057	19,691	-14,406	-4,917
Select white oaks	2,613	-3,245	-515	9,363	-17,734	-1,060
Select red oaks	3,285	-2,517	-832	11,304	-13,159	-3,908
Other white oaks	655	-523	-64	2,930	-1,709	-67
Other red oaks	3,466	-3,172	-465	12,912	-15,592	-1,942
Black locust	41	-545	-1,185	2,505	-766	-1,022
Elm	4,430	-809	-1,705	10,501	-2,300	-4,879
Other hardwoods	2,834	-985	-586	6,549	-2,323	-1,481
Total hardwoods	59,652	-26,921	-13,577	198,882	-116,095	-34,971
Total, all species	63,685	-28,177	-14,003	212,460	-119,498	-35,355

NORTHEASTERN UNIT

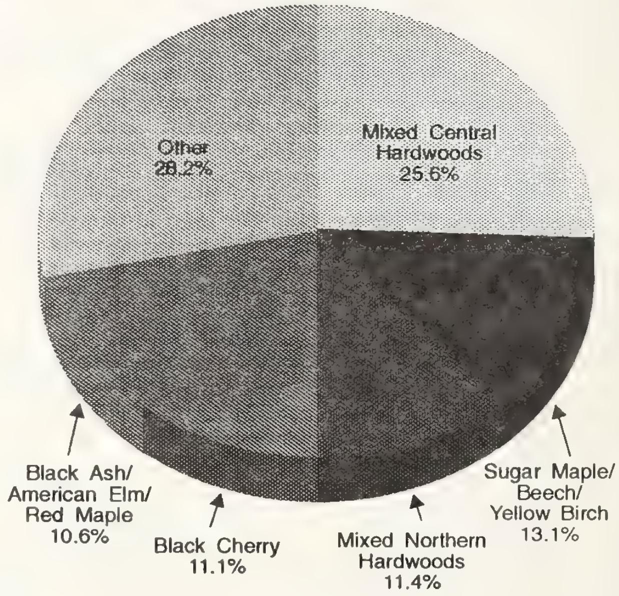
The Northeastern Unit is made up of 17 counties. It has the largest amount of forested area in the Glaciated Region, with just under 27 percent of the area in timberland. On the average, there are approximately 125 trees per acre, 1,430 cubic feet per acre, and 3,905 board feet per acre. These numbers are mixed in relation to the State averages.

There were 25 individual forest types recorded. The mixed central hardwoods type is the leader with 24 percent of the timberland area. However, the northern hardwoods forests occupy the largest area with nearly 43 percent of the timberland area in this type group. The predominate species groups in this unit are the red maples—one of every five trees measured—followed closely by black cherry.

The Northeastern Unit is not heavily harvested in relation to those units that comprise the Hill Country. The annual cubic feet growth to removals ratio is 2.3:1, and the board feet ratio is 1.8:1. The red maple and black cherry (particulary board feet) groups have the highest growth to removals ratios.

The more heavily harvested species groups within this unit are the sugar maples, yellow-poplar, and the oaks. Of these groups, only the sawtimber volume of the select white oaks is being removed at a higher rate than they are growing.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	CUBIC-FOOT VOLUME Volume/acre	Percent	Ratio[1]	BOARD-FOOT VOLUME Volume/acre	Percent	Ratio[1]
Red Maple	22.0	202	14.1	5.3 : 1	450	11.5	3.2 : 1
Sugar Maple	10.4	118	8.2	1.6 : 1	313	8.0	1.3 : 1
Hickory	7.5	94	6.6	1.9 : 1	272	7.0	2.4 : 1
White Ash	12.0	146	10.2	2.1 : 1	402	10.3	2.4 : 1
Yellow-poplar	4.0	55	3.9	1.8 : 1	164	4.2	1.0 : 1
Black Cherry	15.3	180	12.6	2.6 : 1	473	12.1	4.6 : 1
Select White Oaks	5.5	87	6.2	1.3 : 1	285	7.3	(0.7 : 1)
Select Red Oaks	4.6	108	7.5	1.5 : 1	411	10.5	1.3 : 1
Other Red Oaks	4.4	80	5.6	1.4 : 1	277	7.1	1.3 : 1
Elm	12.9	80	5.6	9.2 : 1	128	3.3	4.6 : 1

[1] **Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.**

Table 53. Area of timberland by forest type, forest-type group, and stand-size class, Northeastern Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	4.3	4.4	4.2	.0	12.9	57.7
Scotch pine	.0	3.4	.0	.0	3.4	71.4
White/red pine group	4.3	7.8	4.2	.0	16.3	48.0
Post, black, or bear oak	7.1	.0	.0	.0	7.1	77.2
White oak/red oak/hickory	43.4	7.9	2.6	.0	53.9	32.9
Northern red oak	18.8	.0	4.0	.0	22.8	46.0
Y-poplar/wh. oak/no.red oak	12.0	.0	.0	.0	12.0	85.2
Black locust	8.5	.0	.0	.0	8.5	100.0
Yellow-poplar	.0	11.4	.0	.0	11.4	100.0
Hawthorn/reverting field	.0	10.7	11.1	.0	21.9	50.1
Scarlet oak	.0	.0	5.9	.0	5.9	100.0
Red maple/central hardwood	.0	19.4	11.3	.0	30.7	41.6
Mixed central hardwoods	206.6	85.4	56.3	.0	348.3	11.8
Oak/hickory group	296.4	134.9	91.3	.0	522.5	9.0
Sweetbay/swamp tupelo/red mple	.0	.0	2.1	.0	2.1	100.0
Oak/gum/cypress group	.0	.0	2.1	.0	2.1	100.0
Black ash/Amer. elm/red maple	53.8	25.6	64.3	.0	143.8	20.3
Red maple(lowland)	.0	8.2	3.9	.0	12.1	53.0
Red maple(upland)	4.3	2.7	10.8	.0	17.8	47.1
Cottonwood	9.3	4.2	3.6	.0	17.1	63.1
Willow	18.6	3.6	4.0	.0	26.3	52.0
Sycamore/pecan/American elm	2.0	.0	.0	.0	2.0	100.0
Elm/ash/red maple group	88.0	44.4	86.8	.0	219.1	16.0
Sugar maple/beech/yellow birch	98.8	39.5	40.0	.0	178.3	18.1
Black Cherry	65.9	39.2	46.4	.0	151.5	18.8
Red maple/northern hardwoods	25.1	34.0	23.6	.0	82.6	22.6
Pin cherry/reverting field	.0	2.9	13.9	.0	16.8	53.9
Mixed northern hardwoods	78.2	63.0	14.0	.0	155.2	19.0
Northern hardwoods group	268.0	178.7	137.8	.0	584.4	8.3
Aspen	.0	4.4	13.7	.0	18.1	45.5
Aspen/birch group	.0	4.4	13.7	.0	18.1	45.5
All forest types	656.6	370.1	335.8	.0	1,362.5	3.6
SE	7.5	11.3	12.0	.0	3.6	

Table 54. Number of growing-stock trees on timberland by species and diameter class, Northeastern Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Red pine	0	0	0	804	541	124	159	134
White pine	663	633	522	0	248	247	26	36
Virginia pine	0	0	0	78	0	0	0	0
Other softwoods	2,992	1,349	1,120	1,444	758	327	68	147
Total softwoods	3,655	1,981	1,642	2,326	1,547	699	254	317
Red Maple	444,460	79,046	19,682	12,617	7,588	4,348	2,248	1,434
Sugar maple	843,250	77,900	20,276	5,520	3,336	1,975	1,299	855
Hickory	69,493	7,374	5,885	2,871	2,628	1,639	1,326	739
Beech	204,069	15,091	4,795	2,071	1,158	1,725	923	511
White ash	718,317	22,399	10,501	5,613	4,247	2,839	1,375	837
Black walnut	4,389	678	168	701	504	266	112	187
Yellow-poplar	28,871	5,756	1,271	2,022	1,105	1,156	327	273
Sycamore	4,124	0	0	0	57	57	61	68
Aspen	30,981	7,432	3,479	2,635	2,049	657	457	147
Black cherry	1,757,745	57,824	13,980	7,081	5,093	3,312	2,429	1,311
Select white oaks	13,547	3,657	1,931	1,557	1,410	1,794	1,018	689
Select red oaks	55,584	15,102	3,370	1,019	738	1,072	1,094	656
Other white oaks	9,485	0	0	0	39	39	8	7
Other red oaks	61,255	6,923	3,139	1,189	1,198	1,153	839	475
Black locust	877	327	2,017	146	819	625	302	167
Elm	222,338	52,289	14,057	8,781	4,522	2,468	762	619
Other hardwoods	443,277	66,183	15,160	5,260	3,320	1,551	1,119	580
Total hardwoods	4,912,063	417,980	119,713	59,083	39,812	26,678	15,701	9,553
Total, all species	4,915,718	419,962	121,355	61,410	41,359	27,377	15,955	9,871
SE	8.7	8.8	8.0	6.8	6.5	7.0	6.7	7.7

Table 54. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Red pine	28	9	0	0	0	1,799	1,799	46.4
White pine	0	0	0	0	0	558	2,375	43.6
Virginia pine	0	0	0	0	0	78	78	100.0
Other softwoods	17	15	6	5	0	2,788	8,249	34.0
Total softwoods	45	23	6	5	0	5,223	12,502	24.8
Red Maple	748	496	222	305	31	30,037	573,225	13.5
Sugar maple	504	284	106	243	30	14,153	955,579	15.9
Hickory	556	262	73	109	2	10,206	92,958	17.0
Beech	203	138	189	249	32	7,200	231,156	27.0
White ash	657	346	108	328	33	16,383	767,599	14.1
Black walnut	119	84	26	23	0	2,024	7,259	48.2
Yellow-poplar	179	103	79	133	32	5,408	41,307	28.6
Sycamore	39	46	31	4	16	379	4,503	67.0
Aspen	45	96	0	52	41	6,178	48,070	31.3
Black cherry	611	493	205	263	17	20,816	1,850,365	14.2
Select white oaks	287	259	115	299	67	7,495	26,631	27.1
Select red oaks	735	445	163	291	95	6,309	80,365	20.6
Other white oaks	84	39	3	39	0	259	9,744	85.0
Other red oaks	399	179	165	223	110	5,932	77,250	39.8
Black locust	33	36	21	27	0	2,177	5,397	36.6
Elm	351	41	33	43	2	17,622	306,306	12.8
Other hardwoods	248	109	73	109	15	12,385	537,005	15.2
Total hardwoods	5,798	3,458	1,613	2,743	523	164,962	5,614,719	7.8
Total, all species	5,843	3,481	1,619	2,747	523	170,186	5,627,220	7.8
SE	9.4	10.4	11.8	11.6	20.1	5.0	7.8	

Table 55. Net volume of sawtimber trees on timberland by species and diameter class, Northeastern Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	3.9	9.2	13.8	4.0	1.6	.0	.0	.0	32.6	63.4
White pine	8.7	2.0	2.6	.0	.0	.0	.0	.0	13.3	58.3
Other softwoods	10.0	3.4	10.2	3.3	1.9	.5	1.1	.0	30.4	35.7
Total softwoods	22.6	14.7	26.7	7.3	3.6	.5	1.1	.0	76.3	32.5
Red Maple	.0	141.5	127.6	82.5	86.9	47.1	108.4	19.8	613.6	15.4
Sugar maple	.0	89.0	87.0	70.7	44.6	24.9	91.2	19.7	427.1	16.5
Hickory	.0	91.9	81.5	86.5	53.7	17.7	38.2	1.1	370.6	15.7
Beech	.0	68.6	54.9	28.7	30.9	48.7	85.2	24.1	341.2	19.3
White ash	.0	102.8	89.2	105.0	77.6	25.3	127.3	20.9	548.3	17.4
Black walnut	.0	5.0	17.9	17.8	15.8	6.1	6.5	.0	69.1	26.7
Yellow-poplar	.0	24.2	32.7	31.0	23.1	25.7	66.3	19.9	222.9	23.0
Sycamore	.0	3.6	8.3	5.6	8.2	6.4	1.8	18.6	52.5	42.1
Aspen	.0	34.3	14.1	7.5	20.7	.0	21.9	30.6	129.1	36.2
Black cherry	.0	179.9	126.4	84.1	97.4	49.1	93.0	15.3	645.1	12.8
Select white oaks	.0	60.0	70.4	37.7	42.4	28.1	104.0	45.1	387.8	26.0
Select red oaks	.0	73.9	64.1	103.3	82.6	38.2	120.8	76.5	559.4	20.1
Other white oaks	.0	.4	.4	8.5	5.2	.5	13.3	.0	28.3	93.9
Other red oaks	.0	48.4	43.2	56.1	31.4	43.5	78.7	76.4	377.7	21.1
Black locust	.0	16.7	12.4	3.6	3.3	3.8	7.0	.0	46.8	48.2
Elm	.0	45.4	59.8	40.7	5.4	8.9	13.3	.8	174.3	15.6
Other hardwoods	.0	73.5	56.9	32.0	20.8	20.6	39.0	6.2	249.2	20.2
Total hardwoods	.0	1,059.2	946.8	801.4	650.1	394.5	1,015.9	375.1	5,243.0	6.6
Total, all species	22.6	1,073.9	973.4	808.7	653.7	395.0	1,017.0	375.1	5,319.3	6.6
SE	39.1	7.2	7.9	9.8	10.8	12.2	13.0	19.1	6.6	

Table 56. Net volume of sawtimber trees on timberland by forest type and stand-size class, Northeastern Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	17.3	2.5	6.0	.0	25.8	71.6
Scotch pine	.0	8.7	.0	.0	8.7	70.7
White/red pine group	17.3	11.2	6.0	.0	34.5	56.5
Post, black, or bear oak	22.0	.0	.0	.0	22.0	70.8
White oak/red oak/hickory	400.8	34.2	3.9	.0	439.0	41.9
Northern red oak	129.2	.0	.0	.0	129.2	54.4
Y-poplar/wh. oak/no.red oak	50.5	.0	.0	.0	50.5	82.0
Black locust	25.4	.0	.0	.0	25.4	100.0
Yellow-poplar	.0	13.6	.0	.0	13.6	100.0
Hawthorn/reverting field	.0	2.2	.0	.0	2.2	100.0
Scarlet oak	.0	.0	1.4	.0	1.4	100.0
Red maple/central hardwood	.0	63.4	.0	.0	63.4	58.5
Mixed central hardwoods	1,298.9	169.5	40.0	.0	1,508.3	15.1
Oak/hickory group	1,926.8	283.0	45.3	.0	2,255.1	12.6
Black ash/Amer. elm/red maple	359.8	21.6	41.0	.0	422.5	36.0
Red maple(lowland)	.0	6.9	.0	.0	6.9	86.9
Red maple(upland)	14.4	2.1	.7	.0	17.2	84.7
Cottonwood	78.9	4.2	7.2	.0	90.3	87.9
Willow	70.7	5.6	.0	.0	76.3	55.7
Sycamore/pecan/American elm	22.2	.0	.0	.0	22.2	100.0
Elm/ash/red maple group	546.1	40.3	48.9	.0	635.4	28.1
Sugar maple/beech/yellow birch	619.2	81.0	57.0	.0	757.2	20.3
Black Cherry	337.6	92.2	20.9	.0	450.7	22.4
Red maple/northern hardwoods	213.9	40.4	10.2	.0	264.5	34.3
Mixed northern hardwoods	768.2	118.8	28.3	.0	915.3	23.2
Northern hardwoods group	1,938.9	332.4	116.3	.0	2,387.7	11.1
Aspen	.0	5.1	1.7	.0	6.7	77.0
Aspen/birch group	.0	5.1	1.7	.0	6.7	77.0
All forest types	4,429.2	672.0	218.2	.0	5,319.3	6.6
SE	8.4	15.2	24.8	.0	6.6	

Table 57. Net volume of growing-stock trees on timberland by species and diameter class, Northeastern Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	2.7	3.3	1.4	2.7	3.2	.9	.4	.0	.0	.0	14.5	46.5
White pine	.0	1.3	2.8	.4	.7	.0	.0	.0	.0	.0	5.2	48.9
Virginia pine	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	100.0
Other softwoods	4.3	4.6	3.2	1.0	2.5	.7	.5	.2	.2	.0	17.1	35.5
Total softwoods	7.2	9.2	7.4	4.1	6.3	1.6	.8	.2	.2	.0	37.0	26.3
Red Maple	31.4	45.1	46.7	38.0	33.8	22.4	20.4	11.2	21.8	4.3	275.1	12.8
Sugar maple	14.9	23.8	22.4	23.2	21.2	16.9	10.5	5.2	18.2	3.9	160.1	13.0
Hickory	7.2	17.1	19.5	23.8	19.0	18.8	11.6	3.8	7.6	.2	128.7	14.0
Beech	5.0	9.3	20.8	16.6	13.1	6.8	6.6	10.5	18.0	3.9	110.7	20.6
White ash	15.2	27.6	32.4	26.3	21.1	24.1	16.7	5.9	25.7	4.5	199.3	12.9
Black walnut	1.8	3.2	2.6	1.5	4.3	3.9	3.3	1.3	1.4	.0	23.2	26.1
Yellow-poplar	5.2	7.4	14.3	6.6	7.7	6.8	4.8	5.2	12.9	3.8	74.8	25.0
Sycamore	.0	.6	.8	1.0	1.9	1.2	1.8	1.5	.3	3.2	12.3	42.9
Aspen	8.8	13.4	7.3	8.0	3.5	1.6	4.4	.0	4.4	6.3	57.7	23.2
Black cherry	20.9	31.7	39.0	44.7	32.7	19.8	21.7	11.3	19.8	3.1	244.7	11.3
Select white oaks	3.8	8.0	20.1	16.2	16.5	8.7	9.9	6.1	20.8	8.8	118.9	26.1
Select red oaks	2.9	4.5	13.5	19.0	16.3	24.7	19.1	8.2	24.2	14.2	146.7	18.9
Other white oaks	.0	.2	.4	.1	.1	2.0	1.5	.1	2.7	.0	7.2	91.5
Other red oaks	2.8	7.5	12.4	14.4	11.2	13.0	7.3	9.3	15.8	15.7	109.5	19.5
Black locust	.2	4.3	6.2	4.5	3.5	.9	1.0	.7	1.6	.0	22.9	50.7
Elm	20.1	23.2	22.9	11.8	14.5	10.3	1.3	2.0	3.0	.2	109.3	12.7
Other hardwoods	12.6	18.2	18.5	19.1	13.6	7.6	4.6	4.1	8.0	1.4	107.7	16.0
Total hardwoods	152.9	245.2	299.9	274.9	233.9	189.5	146.3	86.5	206.3	73.6	1,908.9	5.4
Total, all species	160.1	254.4	307.3	278.9	240.3	191.1	147.2	86.7	206.5	73.6	1,946.0	5.4
SE	7.0	6.7	7.3	7.0	8.0	9.9	10.7	12.0	12.5	18.8	5.4	

Table 58. Net volume of growing-stock trees on timberland by forest type and stand-size class, Northeastern Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Red pine	5.3	5.3	3.4	.0	13.9	58.8
Scotch pine	.0	7.3	.0	.0	7.3	71.1
White/red pine group	5.3	12.6	3.4	.0	21.3	45.7
Post, black, or bear oak	6.0	.0	.0	.0	6.0	71.1
White oak/red oak/hickory	114.2	17.4	1.3	.0	133.0	39.1
Northern red oak	39.3	.0	.6	.0	39.9	51.8
Y-poplar/wh. oak/no.red oak	19.2	.0	.0	.0	19.2	87.4
Black locust	10.4	.0	.0	.0	10.4	100.0
Yellow-poplar	.0	18.3	.0	.0	18.3	100.0
Hawthorn/reverting field	.0	1.1	.2	.0	1.3	83.6
Scarlet oak	.0	.0	.5	.0	.5	100.0
Red maple/central hardwood	.0	39.1	1.9	.0	41.0	53.1
Mixed central hardwoods	409.9	104.2	24.8	.0	538.9	14.0
Oak/hickory group	599.1	180.1	29.3	.0	808.5	11.3
Sweetbay/swamp tupelo/red mple	.0	.0	.1	.0	.1	100.0
Oak/gum/cypress group	.0	.0	.1	.0	.1	100.0
Black ash/Amer. elm/red maple	123.1	23.8	29.6	.0	176.4	30.3
Red maple(lowland)	.0	6.1	.1	.0	6.1	73.7
Red maple(upland)	6.5	3.3	1.8	.0	11.6	64.0
Cottonwood	21.3	2.5	4.0	.0	27.8	78.5
Willow	20.4	3.4	.0	.0	23.8	54.1
Sycamore/pecan/American elm	5.2	.0	.0	.0	5.2	100.0
Elm/ash/red maple group	176.5	39.0	35.5	.0	250.9	23.8
Sugar maple/beech/yellow birch	180.1	52.6	27.8	.0	260.6	18.8
Black Cherry	119.8	48.5	12.0	.0	180.3	21.7
Red maple/northern hardwoods	56.8	37.8	6.4	.0	101.0	26.9
Pin cherry/reverting field	.0	.1	.0	.0	.1	100.0
Mixed northern hardwoods	220.8	81.1	10.7	.0	312.6	20.4
Northern hardwoods group	577.4	220.2	56.9	.0	854.5	9.7
Aspen	.0	3.6	7.1	.0	10.7	51.0
Aspen/birch group	.0	3.6	7.1	.0	10.7	51.0
All forest types	1,358.2	455.5	132.2	.0	1,946.0	5.4
SE	8.2	13.2	17.3	.0	5.4	

Table 59. Average annual net change of growing-stock volume on timberland by species and component of change, Northeastern Unit, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Red pine	59	340	400	-183	53	-18	252	0	252
White pine	79	192	271	0	0	0	271	-22	249
Virginia pine	11	1	12	0	0	0	12	0	12
Other softwoods	276	491	767	-127	18	0	659	-151	507
Total softwoods	426	1,025	1,451	-311	71	-18	1,194	-173	1,020
Red Maple	3,545	7,682	11,228	-427	1,118	-337	11,582	-2,186	9,397
Sugar maple	1,254	3,562	4,816	-427	758	-126	5,019	-3,091	1,928
Hickory	633	2,561	3,193	-166	406	-25	3,409	-1,841	1,568
Beech	257	2,125	2,383	-343	1,086	-108	3,018	-2,300	717
White ash	1,761	5,474	7,235	-1,110	683	-142	6,667	-3,111	3,555
Black walnut	279	593	871	-51	171	0	991	-234	757
Yellow-poplar	846	2,718	3,564	-30	0	-11	3,523	-1,942	1,581
Sycamore	41	351	391	0	0	0	391	0	391
Aspen	936	1,386	2,322	-679	120	0	1,763	-682	1,081
Black cherry	1,967	6,347	8,313	-600	1,499	-185	9,027	-3,318	5,709
Select white oaks	838	2,619	3,457	-259	447	-86	3,559	-3,094	465
Select red oaks	1,811	3,954	5,765	-321	175	-11	5,608	-3,844	1,764
Other white oaks	0	123	123	0	16	0	139	0	139
Other red oaks	1,610	2,877	4,488	-372	123	0	4,238	-3,084	1,154
Black locust	111	477	588	-335	217	-37	433	-264	169
Elm	2,757	2,807	5,564	-665	192	-17	5,074	-551	4,523
Other hardwoods	1,094	2,621	3,715	-733	492	-240	3,234	-687	2,546
Total hardwoods	19,740	48,279	68,019	-6,519	7,501	-1,325	67,675	-30,230	37,446
Total, all species	20,166	49,304	69,469	-6,830	7,572	-1,343	68,869	-30,403	38,466

Table 60. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, Northeastern Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Red pine	252	0	-183	450	0	-460
White pine	271	-22	0	890	0	0
Virginia pine	12	0	0	0	0	0
Other softwoods	659	-151	-127	1,573	-981	-218
Total softwoods	1,194	-173	-311	2,914	-981	-678
Red Maple	11,582	-2,186	-427	24,529	-7,790	-1,098
Sugar maple	5,019	-3,091	-427	13,916	-10,404	-829
Hickory	3,409	-1,841	-166	10,993	-4,671	-57
Beech	3,018	-2,300	-343	8,188	-10,333	-1,175
White ash	6,667	-3,111	-1,110	22,784	-9,587	-1,831
Black walnut	991	-234	-51	2,684	-860	-144
Yellow-poplar	3,523	-1,942	-30	8,941	-8,722	0
Sycamore	391	0	0	1,423	0	0
Aspen	1,763	-682	-679	4,671	-1,239	-606
Black cherry	9,027	-3,318	-600	31,115	-6,756	-646
Select white oaks	3,559	-3,094	-259	11,605	-17,716	-318
Select red oaks	5,608	-3,844	-321	22,827	-18,484	-1,398
Other white oaks	139	0	0	256	0	0
Other red oaks	4,238	-3,084	-372	15,171	-11,653	-1,556
Black locust	433	-264	-335	1,813	-214	-228
Elm	5,074	-551	-665	8,574	-1,858	-739
Other hardwoods	3,234	-687	-733	5,776	-2,483	-2,323
Total hardwoods	67,675	-30,230	-6,519	195,264	-112,772	-12,949
Total, all species	68,869	-30,403	-6,830	198,178	-113,753	-13,627

SOUTHWESTERN UNIT

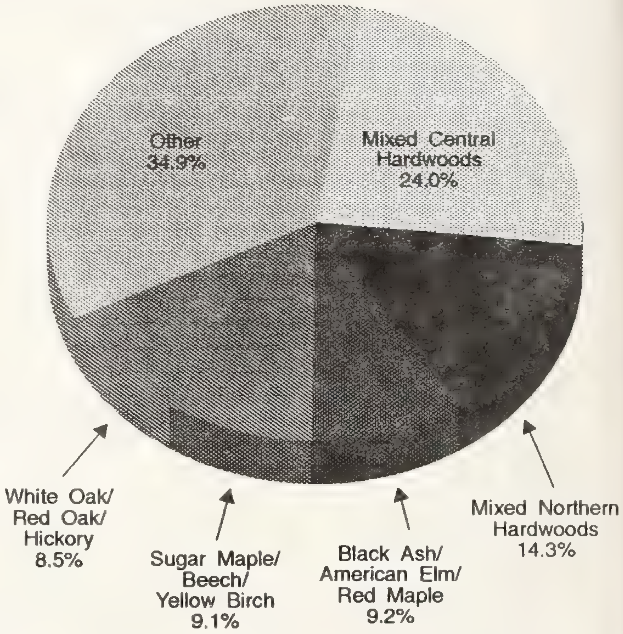
The Southwestern Unit is made up of 16 counties. It has the least amount of forested area in the Glaciated Region, with just under 13 percent of the area in timberland. On average, there are approximately 89 trees per acre, 1,185 cubic feet per acre, and 3,920 board feet per acre. These numbers are well below the averages for the State.

There were 23 individual forest types recorded. The mixed central hardwoods type is the majority leader with 24 percent of the timberland area. The oak/hickory forests predominate, with nearly 41 percent of the timberland area in this type group. White ash is the predominate species group in the unit.

Although the Unit is not considered an area that is heavily harvested, the ratios of average annual net growth to removals indicate a different story. The cubic feet ratio is 2.0:1, and the board feet ratio is 1.7:1 (both ratios are close to the extensively harvested South-Central Unit). The sugar maple group has the highest growth to removals ratios.

The more heavily harvested species within the unit are the select white oaks, and both of the red oaks groups, which have ratios that are either more closely balanced or are being harvested more than they are growing. Of particular importance is the sawtimber growth to removals ratio of the red oaks. There is less red oak growing annually than is being removed from timberlands across the unit.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	CUBIC-FOOT VOLUME Volume/acre	Percent	Ratio[1]	BOARD-FOOT VOLUME Volume/acre	Percent	Ratio[1]
Red Maple	7.6	77	6.5	3.0 : 1	225	5.7	1.6 : 1
Sugar Maple	7.0	97	8.1	8.1 : 1	292	7.5	11.9 : 1
Hickory	8.7	116	9.8	2.8 : 1	343	8.8	2.5 : 1
White Ash	12.1	182	15.3	2.4 : 1	630	16.1	3.0 : 1
Sycamore	2.3	76	6.4	4.0 : 1	346	8.8	6.6 : 1
Black Cherry	7.2	63	5.3	3.7 : 1	159	4.1	2.2 : 1
Select White Oaks	4.2	110	9.3	1.7 : 1	456	11.6	1.3 : 1
Select Red Oaks	1.9	55	4.6	1.2 : 1	218	5.6	(0.8 : 1)
Other Red Oaks	1.2	40	3.4	(0.5 : 1)	161	4.1	(0.3 : 1)
Elm	13.7	85	7.1	2.2 : 1	134	3.4	3.0 : 1

[1] **Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.**

Table 61. Area of timberland by forest type, forest-type group, and stand-size class, Southwestern Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	7.5	.0	.0	.0	7.5	100.0
White/red pine group	7.5	.0	.0	.0	7.5	100.0
White spruce	.0	.0	5.8	.0	5.8	100.0
Spruce/fir group	.0	.0	5.8	.0	5.8	100.0
Other oak/pine	7.9	.0	.0	.0	7.9	100.0
Oak/pine group	7.9	.0	.0	.0	7.9	100.0
Post, black, or bear oak	5.8	.0	.0	.0	5.8	100.0
White oak/red oak/hickory	34.6	2.1	14.8	.0	51.5	34.5
White oak	2.1	.0	.0	.0	2.1	100.0
Black walnut	2.1	.0	4.1	.0	6.2	74.0
Yellow-poplar	7.5	.0	.0	.0	7.5	100.0
Hawthorn/reverting field	.0	.0	17.9	.0	17.9	52.4
Red maple/central hardwood	7.9	.0	2.1	.0	10.0	81.5
Mixed central hardwoods	86.1	24.9	35.6	.0	146.5	19.4
Oak/hickory group	146.1	27.0	74.5	.0	247.6	13.3
Black ash/Amer. elm/red maple	48.5	6.2	1.2	.0	55.9	38.7
Red maple(upland)	8.6	.0	.0	.0	8.6	100.0
Cottonwood	11.4	.0	.0	.0	11.4	71.0
Willow	.0	.0	11.9	.0	11.9	76.2
Sycamore/pecan/American elm	32.5	17.6	.0	.0	50.1	39.3
American elm/green ash	12.7	2.9	.0	.0	15.6	63.9
Elm/ash/red maple group	113.6	26.7	13.1	.0	153.5	19.0
Sugar maple/beech/yellow birch	48.4	.0	6.7	.0	55.2	29.7
Black Cherry	2.2	1.2	6.5	.0	10.0	46.6
Red maple/northern hardwoods	.0	15.4	4.1	.0	19.4	59.7
Pin cherry/reverting field	.0	.0	9.7	.0	9.7	72.0
Mixed northern hardwoods	46.8	6.7	33.9	.0	87.4	24.0
Northern hardwoods group	97.5	23.3	60.9	.0	181.7	15.8
Aspen	.0	.0	5.4	.0	5.4	100.0
Aspen/birch group	.0	.0	5.4	.0	5.4	100.0
All forest types	372.6	77.1	159.6	.0	609.3	6.0
SE	9.1	29.3	19.6	.0	6.0	

Table 62. Number of growing-stock trees on timberland by species and diameter class, Southwestern Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	2,992	493	723	271	29	0	0	0
Red pine	0	0	0	0	0	0	33	0
White pine	0	0	0	260	71	46	148	85
Virginia pine	0	0	0	0	143	0	36	59
Other softwoods	3,189	1,384	346	401	253	51	124	27
Total softwoods	6,181	1,878	1,069	932	497	97	342	170
Red Maple	64,945	9,753	2,993	1,669	1,173	579	434	296
Sugar maple	415,906	18,917	3,063	1,383	813	619	559	368
Hickory	54,883	7,746	3,688	1,114	1,905	702	618	385
Beech	10,181	519	133	149	20	75	53	9
White ash	307,989	13,256	2,908	2,275	1,532	996	866	580
Black walnut	2,095	1,775	0	323	308	326	486	192
Yellow-poplar	14,591	2,036	0	50	94	42	41	61
Sycamore	5,845	547	547	104	81	176	362	210
Aspen	13,658	0	311	128	124	246	164	167
Black cherry	223,314	12,597	4,970	2,181	775	609	304	271
Select white oaks	33,054	1,108	1,703	411	515	248	151	253
Select red oaks	28,189	1,097	922	129	124	111	145	151
Other white oaks	7,972	472	0	0	89	65	39	110
Other red oaks	14,339	372	133	85	21	67	71	61
Black locust	21,737	13,095	3,354	254	271	100	137	110
Elm	124,403	37,454	9,687	3,278	2,526	1,510	498	272
Other hardwoods	574,176	36,000	13,509	2,715	1,461	1,169	455	293
Total hardwoods	1,917,278	156,745	47,923	16,248	11,833	7,640	5,383	3,787
Total, all species	1,923,459	158,623	48,992	17,180	12,330	7,737	5,726	3,958
SE	11.5	13.7	14.0	12.7	11.4	11.8	11.1	10.3

Table 62. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	0	0	0	0	0	300	4,508	46.2
Red pine	0	0	0	0	0	33	33	100.0
White pine	18	34	0	0	0	663	663	85.8
Virginia pine	0	19	0	0	0	257	257	60.1
Other softwoods	68	19	0	0	0	943	5,862	65.1
Total softwoods	86	72	0	0	0	2,196	11,324	39.3
Red Maple	291	43	49	68	33	4,635	82,327	33.4
Sugar maple	260	77	96	67	7	4,249	442,136	23.1
Hickory	316	115	53	79	3	5,291	71,607	18.8
Beech	73	25	24	87	7	522	11,356	46.3
White ash	427	201	257	226	29	7,389	331,542	15.8
Black walnut	154	61	39	15	0	1,905	5,774	31.5
Yellow-poplar	46	35	45	51	3	467	17,095	37.9
Sycamore	136	33	87	141	69	1,400	8,340	71.6
Aspen	24	33	14	54	20	975	14,944	73.2
Black cherry	84	68	55	24	0	4,372	245,253	20.0
Select white oaks	205	152	288	241	84	2,550	38,415	59.5
Select red oaks	273	39	73	74	28	1,145	31,354	41.8
Other white oaks	104	44	44	45	0	540	8,984	65.9
Other red oaks	106	92	93	102	33	731	15,575	58.8
Black locust	51	0	0	0	0	923	39,109	79.5
Elm	169	42	23	28	0	8,348	179,893	18.7
Other hardwoods	151	112	68	120	38	6,581	630,266	16.3
Total hardwoods	2,871	1,172	1,307	1,425	356	52,023	2,173,970	10.4
Total, all species	2,957	1,244	1,307	1,425	356	54,219	2,185,294	10.4
SE	10.6	13.5	15.8	15.5	26.2	8.6	10.4	

Table 63. Net volume of sawtimber trees on timberland by species and diameter class, Southwestern Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	.0	3.6	.0	.0	.0	.0	.0	.0	3.6	100.0
White pine	1.3	6.6	7.9	2.0	3.9	.0	.0	.0	21.6	66.3
Virginia pine	.0	2.8	4.8	.0	2.7	.0	.0	.0	10.3	80.8
Other softwoods	2.5	8.0	2.6	6.4	3.1	.0	.0	.0	22.5	70.9
Total softwoods	3.8	20.9	15.2	8.4	9.6	.0	.0	.0	58.0	53.0
Red Maple	.0	24.8	27.9	35.3	7.2	10.4	21.9	9.9	137.3	23.5
Sugar maple	.0	35.7	40.8	40.2	16.8	20.2	17.9	6.4	178.1	26.1
Hickory	.0	37.0	45.5	53.5	22.2	13.2	34.8	3.0	209.1	19.7
Beech	.0	2.9	.8	9.5	3.8	7.6	33.6	4.3	62.4	32.1
White ash	.0	55.6	54.4	61.1	41.4	63.4	87.2	20.6	383.7	21.1
Black walnut	.0	29.0	18.3	19.6	9.9	4.9	3.9	.0	85.6	18.4
Yellow-poplar	.0	2.7	7.3	8.6	5.5	16.9	26.6	2.9	70.5	55.4
Sycamore	.0	21.6	23.2	23.4	6.2	21.6	60.6	53.9	210.6	31.6
Aspen	.0	10.9	20.0	4.3	8.0	4.2	22.2	14.9	84.5	32.1
Black cherry	.0	21.9	28.8	13.0	14.0	12.4	6.7	.0	96.9	28.5
Select white oaks	.0	10.1	25.5	26.6	23.7	66.3	73.0	52.4	277.6	26.4
Select red oaks	.0	8.9	14.2	37.0	7.0	15.8	28.5	21.4	132.9	27.2
Other white oaks	.0	2.2	7.7	12.4	6.6	8.2	10.1	.0	47.3	49.2
Other red oaks	.0	4.5	4.6	12.1	17.5	16.8	28.1	14.8	98.4	26.6
Black locust	.0	7.9	10.3	5.8	.0	.0	.0	.0	24.0	67.6
Elm	.0	25.1	21.5	19.6	4.2	5.1	6.4	.0	81.9	31.4
Other hardwoods	.0	22.8	24.8	18.3	15.6	10.7	31.3	27.4	151.0	22.6
Total hardwoods	.0	323.6	375.6	400.1	209.8	297.7	492.7	232.0	2,331.7	8.7
Total, all species	3.8	344.6	390.8	408.5	219.5	297.7	492.7	232.0	2,389.6	8.4
SE	73.8	11.1	10.4	11.5	14.1	15.0	16.4	25.0	8.4	

Table 64. Net volume of sawtimber trees on timberland by forest type and stand-size class, Southwestern Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
White pine	12.4	.0	.0	.0	12.4	100.0
White/red pine group	12.4	.0	.0	.0	12.4	100.0
White spruce	.0	.0	2.7	.0	2.7	100.0
Spruce/fir group	.0	.0	2.7	.0	2.7	100.0
Other oak/pine	56.6	.0	.0	.0	56.6	100.0
Oak/pine group	56.6	.0	.0	.0	56.6	100.0
Post, black, or bear oak	8.9	.0	.0	.0	8.9	100.0
White oak/red oak/hickory	236.2	8.7	6.2	.0	251.1	39.9
White oak	24.0	.0	.0	.0	24.0	100.0
Black walnut	6.4	.0	1.1	.0	7.6	86.2
Yellow-poplar	55.6	.0	.0	.0	55.6	100.0
Hawthorn/reverting field	.0	.0	1.7	.0	1.7	70.7
Red maple/central hardwood	36.0	.0	6.7	.0	42.8	85.8
Mixed central hardwoods	501.3	30.7	17.6	.0	549.6	24.7
Oak/hickory group	868.5	39.4	33.4	.0	941.2	16.3
Black ash/Amer. elm/red maple	302.0	4.5	.0	.0	306.5	44.2
Red maple(upland)	29.7	.0	.0	.0	29.7	100.0
Cottonwood	38.9	.0	.0	.0	38.9	71.8
Willow	.0	.0	3.1	.0	3.1	100.0
Sycamore/pecan/American elm	178.9	54.5	.0	.0	233.5	39.4
American elm/green ash	40.2	3.8	.0	.0	44.0	65.2
Elm/ash/red maple group	589.8	62.8	3.1	.0	655.7	22.6
Sugar maple/beech/yellow birch	333.8	.0	.0	.0	333.8	31.0
Black Cherry	8.4	.0	1.1	.0	9.5	89.1
Red maple/northern hardwoods	.0	35.8	2.7	.0	38.5	67.7
Mixed northern hardwoods	301.6	21.1	16.5	.0	339.2	34.5
Northern hardwoods group	643.9	57.0	20.2	.0	721.1	21.4
All forest types	2,171.2	159.2	59.3	.0	2,389.6	8.4
SE	10.0	36.6	27.6	.0	8.4	

Table 65. Net volume of growing-stock trees on timberland by species and diameter class, Southwestern Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	.5	.1	.0	.0	.0	.0	.0	.0	.0	.0	.6	64.6
Red pine	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.8	100.0
White pine	.7	.5	.4	1.8	1.7	.4	.9	.0	.0	.0	6.3	72.8
Virginia pine	.0	1.0	.0	.7	1.2	.0	.7	.0	.0	.0	3.5	59.7
Other softwoods	.9	.9	.6	2.0	.6	1.5	.7	.0	.0	.0	7.3	57.2
Total softwoods	2.1	2.5	1.0	5.3	3.5	1.9	2.2	.0	.0	.0	18.5	48.2
Red Maple	4.0	6.9	5.0	6.7	6.3	7.5	1.5	2.1	4.5	2.3	46.9	21.0
Sugar maple	3.2	5.4	7.5	10.0	9.7	9.2	3.9	5.1	3.7	1.2	58.9	24.4
Hickory	3.5	11.6	8.1	10.8	10.5	11.6	4.9	2.7	6.5	.5	70.9	16.3
Beech	.3	.1	.5	.7	.2	2.3	.8	1.5	6.7	1.0	14.2	32.0
White ash	5.2	9.0	11.1	14.2	12.7	13.9	9.1	13.9	18.0	3.6	110.8	18.5
Black walnut	.9	1.6	3.2	7.3	4.4	4.2	2.4	1.5	.8	.0	26.3	17.7
Yellow-poplar	.1	.5	.4	.7	1.8	1.7	1.3	3.2	5.0	.5	15.2	49.9
Sycamore	.3	.4	1.9	6.1	5.2	4.9	1.3	4.2	11.8	10.3	46.5	30.1
Aspen	.5	.9	2.9	2.8	4.3	.9	1.5	.8	4.4	2.8	21.8	29.4
Black cherry	5.3	4.3	6.4	5.5	6.8	2.8	2.8	2.9	1.6	.0	38.4	22.5
Select white oaks	1.0	2.7	2.5	2.5	6.0	6.0	5.3	14.4	16.2	10.5	67.1	24.6
Select red oaks	.3	.8	1.7	2.3	3.6	9.4	1.7	3.4	6.2	4.4	33.5	28.5
Other white oaks	.0	.5	.6	.6	2.0	2.8	1.4	1.9	2.2	.0	12.1	47.2
Other red oaks	.2	.1	.8	1.4	1.3	3.1	4.1	3.8	6.0	3.9	24.6	24.8
Black locust	.8	1.7	.9	1.9	2.3	1.4	.0	.0	.0	.0	9.0	60.9
Elm	7.4	11.4	13.0	6.8	5.0	4.3	1.0	1.1	1.5	.0	51.5	27.0
Other hardwoods	6.3	6.9	9.5	5.8	6.3	4.2	3.4	2.4	7.5	5.1	57.3	15.7
Total hardwoods	39.3	64.7	76.1	86.2	88.4	90.3	46.5	64.8	102.5	46.1	704.9	7.5
Total, all species	41.4	67.2	77.0	91.5	91.9	92.2	48.7	64.8	102.5	46.1	723.4	7.2
SE	12.9	11.2	11.3	10.9	10.3	11.5	14.4	14.9	16.5	25.3	7.2	

Table 66. Net volume of growing-stock trees on timberland by forest type and stand-size class, Southwestern Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
White pine	6.1	.0	.0	.0	6.1	100.0
White/red pine group	6.1	.0	.0	.0	6.1	100.0
White spruce	.0	.0	.7	.0	.7	100.0
Spruce/fir group	.0	.0	.7	.0	.7	100.0
Other oak/pine	14.1	.0	.0	.0	14.1	100.0
Oak/pine group	14.1	.0	.0	.0	14.1	100.0
Post, black, or bear oak	2.0	.0	.0	.0	2.0	100.0
White oak/red oak/hickory	61.9	4.6	5.6	.0	72.1	36.4
White oak	6.8	.0	.0	.0	6.8	100.0
Black walnut	2.1	.0	.6	.0	2.7	81.1
Yellow-poplar	12.5	.0	.0	.0	12.5	100.0
Hawthorn/reverting field	.0	.0	.5	.0	.5	71.8
Red maple/central hardwood	13.8	.0	2.2	.0	16.0	87.5
Mixed central hardwoods	147.7	18.6	8.0	.0	174.3	22.4
Oak/hickory group	246.8	23.2	16.9	.0	286.8	14.8
Black ash/Amer. elm/red maple	80.4	7.2	.2	.0	87.9	39.4
Red maple(upland)	8.9	.0	.0	.0	8.9	100.0
Cottonwood	10.0	.0	.0	.0	10.0	70.7
Willow	.0	.0	1.9	.0	1.9	100.0
Sycamore/pecan/American elm	48.9	23.4	.0	.0	72.3	40.0
American elm/green ash	12.1	2.0	.0	.0	14.1	63.7
Elm/ash/red maple group	160.2	32.6	2.1	.0	195.0	20.5
Sugar maple/beech/yellow birch	92.8	.0	1.3	.0	94.1	31.5
Black Cherry	2.8	1.2	1.6	.0	5.6	57.3
Red maple/northern hardwoods	.0	18.9	1.6	.0	20.5	67.3
Mixed northern hardwoods	83.8	8.6	7.8	.0	100.2	30.9
Northern hardwoods group	179.3	28.7	12.3	.0	220.4	19.8
Aspen	.0	.0	.2	.0	.2	100.0
Aspen/birch group	.0	.0	.2	.0	.2	100.0
All forest types	606.5	84.5	32.3	.0	723.4	7.2
SE	9.4	32.5	25.1	.0	7.2	

Table 67. Average annual net change of growing-stock volume on timberland by species and component of change, Southwestern Unit, Ohio, 1991

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Eastern redcedar	36	2	38	0	0	0	38	0	38
Red pine	0	5	5	0	0	0	5	0	5
White pine	27	287	315	0	0	0	315	-21	294
Virginia pine	0	75	75	-393	0	0	-318	0	-318
Other softwoods	18	121	140	-196	0	-20	-76	-35	-111
Total softwoods	81	491	572	-589	0	-20	-36	-56	-92
Red Maple	656	1,008	1,664	-194	317	-172	1,614	-539	1,075
Sugar maple	858	1,092	1,950	-296	49	-172	1,531	-188	1,343
Hickory	297	1,516	1,813	-302	165	-73	1,603	-593	1,010
Beech	22	288	310	-210	13	-269	-155	-73	-228
White ash	878	2,725	3,603	-652	129	-151	2,929	-1,222	1,707
Black walnut	237	527	764	-51	0	-15	698	-822	-124
Yellow-poplar	27	579	606	0	0	0	606	-218	388
Sycamore	135	1,075	1,210	-119	89	-15	1,165	-387	778
Aspen	426	553	978	0	0	0	978	-155	824
Black cherry	630	763	1,393	-116	313	-4	1,586	-442	1,144
Select white oaks	306	1,396	1,703	-13	18	-103	1,605	-954	651
Select red oaks	85	897	982	-83	89	-20	968	-800	168
Other white oaks	0	263	263	-157	32	-35	103	-155	-52
Other red oaks	146	499	645	-85	0	0	560	-1,171	-611
Black locust	11	236	247	-227	80	-9	92	-167	-76
Elm	833	1,320	2,153	-966	88	-88	1,186	-642	545
Other hardwoods	685	1,010	1,695	-258	393	-67	1,763	-1,252	510
Total hardwoods	6,233	15,748	21,981	-3,730	1,775	-1,193	18,833	-9,781	9,052
Total, all species	6,315	16,239	22,554	-4,319	1,775	-1,212	18,797	-9,837	8,959

Table 68. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, Southwestern Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Eastern redcedar	38	0	0	0	0	0
Red pine	5	0	0	-27	0	0
White pine	315	-21	0	1,373	0	0
Virginia pine	-318	0	-393	-1,277	0	-1,363
Other softwoods	-76	-35	-196	-572	0	-663
Total softwoods	-36	-56	-589	-503	0	-2,025
Red Maple	1,614	-539	-194	4,106	-2,533	-331
Sugar maple	1,531	-188	-296	3,852	-322	-1,332
Hickory	1,603	-593	-302	4,629	-1,894	-1,454
Beech	-155	-73	-210	-1,846	-544	-1,825
White ash	2,929	-1,222	-652	13,587	-4,510	-2,151
Black walnut	698	-822	-51	3,106	-3,751	0
Yellow-poplar	606	-218	0	2,985	-525	0
Sycamore	1,165	-387	-119	5,563	-1,091	-302
Aspen	978	-155	0	4,948	-964	0
Black cherry	1,586	-442	-116	4,307	-1,972	-393
Select white oaks	1,605	-954	-13	6,805	-5,215	0
Select red oaks	968	-800	-83	4,105	-5,447	-375
Other white oaks	103	-155	-157	211	-835	-876
Other red oaks	560	-1,171	-85	1,959	-6,817	-317
Black locust	92	-167	-227	1,597	0	0
Elm	1,186	-642	-966	3,229	-1,061	-1,173
Other hardwoods	1,763	-1,252	-258	5,144	-2,548	-287
Total hardwoods	18,833	-9,781	-3,730	68,287	-40,027	-10,818
Total, all species	18,797	-9,837	-4,319	67,784	-40,027	-12,843

NORTHWESTERN UNIT

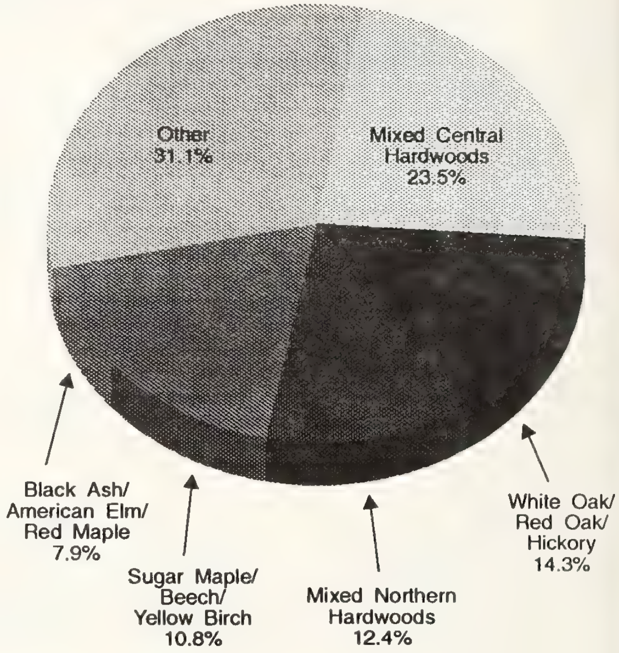
The Northwestern Unit is made up of 26 counties. It is the largest unit within the Glaciated Region. Nearly 11 percent of the area is in timberland. On average, there are approximately 119 trees per acre, 1,490 cubic feet per acre, and 4,575 board feet per acre. The volume numbers are considerably larger than the State averages.

There were 22 individual forest types recorded. The mixed central hardwoods type again was the leader with 26 percent of the timberland area. The oak/hickory forests predominate, with slightly less than half of the timberland area in this type group. Hickory is the predominate species group in the unit.

The Northwestern Unit is the least harvested unit, as revealed by the average annual net growth to removals ratios. The cubic feet ratio is 4.0:1, and the board feet ratio is 2.5:1. Virtually no harvesting takes place in the red maple group.

Even the more heavily harvested species group within the unit—the oak groups and hickory—average substantially more annual net growth that annual removals. The primary reason for the low harvesting level is the large amount of timberland distributed among numerous smaller, farmer-owned woodlots.

PERCENT OF TIMBERLAND AREA BY FOREST TYPE



SUMMARY OF PREDOMINATE SPECIES GROUPS

SPECIES GROUP	NUMBER OF TREES/ACRE	------ CUBIC-FOOT VOLUME ------			------ BOARD-FOOT VOLUME ------		
		Volume/acre	Percent	Ratio[1]	Volume/acre	Percent	Ratio[1]
Red Maple	8.3	135	9.1	24.9 : 1	471	10.3	18.8 : 1
Sugar Maple	11.4	124	8.3	4.0 : 1	367	8.0	1.8 : 1
Hickory	19.5	248	16.6	2.3 : 1	661	14.4	2.0 : 1
Beech	3.5	95	6.4	3.9 : 1	418	9.1	1.8 : 1
White Ash	14.5	172	11.5	4.2 : 1	447	9.8	3.4 : 1
Black Cherry	5.5	73	4.9	9.2 : 1	241	5.3	16.8 : 1
Select White Oaks	5.9	113	7.6	1.8 : 1	428	9.4	1.4 : 1
Select Red Oaks	3.6	85	5.7	4.0 : 1	324	7.1	1.7 : 1
Other Red Oaks	4.4	71	4.8	2.4 : 1	254	5.6	1.6 : 1
Elm	17.6	98	6.6	3.8 : 1	133	2.9	2.2 : 1

[1] Ratio of average annual net growth to removals. Numbers in parentheses indicate more annual removals than annual net growth.

Table 69. Area of timberland by forest type, forest-type group, and stand-size class, Northwestern Unit, Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	2.7	.0	.0	.0	2.7	100.0
White pine	8.4	.0	.0	.0	8.4	67.0
White/red pine group	11.1	.0	.0	.0	11.1	56.2
Post, black, or bear oak	1.9	.0	.0	.0	1.9	100.0
White oak/red oak/hickory	64.8	33.6	16.0	.0	114.4	22.4
White oak	4.9	11.4	.0	.0	16.4	52.7
Northern red oak	15.3	.0	6.1	.0	21.4	50.5
Hawthorn/reverting field	.0	.0	17.1	.0	17.1	58.7
Scarlet oak	6.9	.0	.0	.0	6.9	100.0
Red maple/central hardwood	14.5	.0	.0	.0	14.5	73.2
Mixed central hardwoods	122.1	36.6	28.8	.0	187.5	16.0
Oak/hickory group	230.4	81.6	68.0	.0	380.0	10.5
Black ash/Amer. elm/red maple	23.7	22.8	16.9	.0	63.4	33.1
Red maple(upland)	5.3	.0	.0	.0	5.3	100.0
Cottonwood	18.5	.0	.0	.0	18.5	76.7
Willow	6.1	.0	.0	.0	6.1	100.0
Sycamore/pecan/American elm	22.6	.0	7.8	.0	30.3	51.0
American elm/green ash	17.2	.0	.0	.0	17.2	58.3
Elm/ash/red maple group	93.4	22.8	24.6	.0	140.8	22.5
Sugar maple/beech/yellow birch	64.7	21.2	.0	.0	85.8	26.0
Black Cherry	11.0	.0	11.2	.0	22.2	61.3
Red maple/northern hardwoods	39.4	.0	.0	.0	39.4	46.0
Pin cherry/reverting field	.0	.0	8.4	.0	8.4	100.0
Mixed northern hardwoods	42.3	53.8	3.2	.0	99.2	21.7
Northern hardwoods group	157.4	74.9	22.8	.0	255.1	13.1
Aspen	.0	10.5	.0	.0	10.5	71.7
Aspen/birch group	.0	10.5	.0	.0	10.5	71.7
All forest types	492.2	189.8	115.4	.0	797.5	4.3
SE	8.0	16.2	22.3	.0	4.3	

Table 70. Number of growing-stock trees on timberland by species and diameter class, Northwestern Unit, Ohio, 1991

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	Seedlings	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Eastern redcedar	1,206	0	0	0	0	0	0	0
Red pine	0	95	95	69	317	311	122	21
White pine	0	731	0	561	631	340	232	94
Virginia pine	0	365	0	0	0	0	0	0
Other softwoods	0	0	0	0	118	0	0	0
Total softwoods	1,206	1,191	95	630	1,067	651	354	115
Red Maple	43,135	14,586	2,700	1,730	1,390	1,081	739	688
Sugar maple	582,993	46,150	9,965	4,330	1,905	877	686	376
Hickory	96,992	11,330	5,743	4,716	3,842	2,997	1,513	1,111
Beech	34,377	7,360	2,119	741	491	119	272	186
White ash	514,006	22,964	9,817	3,741	2,726	2,277	1,001	787
Black walnut	3,850	856	322	568	460	327	411	450
Yellow-poplar	1,075	0	0	172	83	310	112	77
Sycamore	0	0	311	0	135	0	134	142
Aspen	13,063	3,685	1,454	681	519	334	227	126
Black cherry	415,733	12,726	4,287	1,589	718	746	583	390
Select white oaks	17,507	2,707	207	1,072	1,071	626	523	383
Select red oaks	31,333	3,856	1,417	617	782	366	173	160
Other white oaks	0	0	0	0	0	21	0	0
Other red oaks	16,123	3,527	1,239	1,190	669	257	339	333
Black locust	19,720	1,873	0	166	171	43	0	0
Elm	251,296	65,043	17,402	7,368	3,691	1,651	864	186
Other hardwoods	365,634	44,982	11,500	5,828	1,790	1,143	667	414
Total hardwoods	2,406,838	241,646	68,485	34,510	20,446	13,175	8,243	5,811
Total, all species	2,408,044	242,837	68,580	35,140	21,512	13,826	8,597	5,925
SE	9.3	8.2	8.8	7.5	8.2	8.4	8.3	8.2

Table 70. continued

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0 and larger	All classes	
Eastern redcedar	0	0	0	0	0	0	1,206	78.0
Red pine	0	0	0	0	0	840	1,031	59.8
White pine	56	48	0	4	0	1,966	2,697	58.2
Virginia pine	0	0	0	0	0	0	365	100.0
Other softwoods	0	0	0	0	0	118	118	100.0
Total softwoods	56	48	0	4	0	2,925	5,417	39.0
Red Maple	232	323	166	201	55	6,605	67,027	27.3
Sugar maple	375	116	87	302	0	9,055	648,162	16.7
Hickory	684	360	137	174	25	15,558	129,623	15.3
Beech	148	192	106	412	99	2,767	46,622	32.9
White ash	433	353	161	93	4	11,576	558,364	14.5
Black walnut	114	116	15	9	0	2,470	7,499	35.6
Yellow-poplar	12	35	16	10	0	827	1,902	62.0
Sycamore	65	128	34	74	30	743	1,054	40.2
Aspen	69	25	39	40	39	2,100	20,302	47.0
Black cherry	69	155	73	76	8	4,407	437,153	21.6
Select white oaks	289	270	139	218	77	4,669	25,091	35.1
Select red oaks	167	288	67	197	75	2,894	39,500	32.8
Other white oaks	0	0	0	0	0	21	21	100.0
Other red oaks	292	172	60	162	15	3,489	24,378	35.2
Black locust	0	0	0	0	0	381	21,973	64.2
Elm	93	70	72	25	0	14,020	347,762	13.4
Other hardwoods	303	200	20	150	35	10,550	432,666	18.2
Total hardwoods	3,344	2,804	1,191	2,147	461	92,132	2,809,100	8.4
Total, all species	3,401	2,852	1,191	2,151	461	95,056	2,814,518	8.4
SE	10.2	10.6	13.5	11.7	22.9	5.7	8.4	

Table 71. Net volume of sawtimber trees on timberland by species and diameter class, Northwestern Unit, Ohio, 1991

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	10.0	8.8	2.3	.0	.0	.0	.0	.0	21.1	92.5
White pine	13.3	16.8	9.9	8.1	10.6	.0	1.4	.0	60.1	61.6
Total softwoods	23.3	25.6	12.2	8.1	10.6	.0	1.4	.0	81.3	54.8
Red Maple	.0	49.7	75.6	33.8	61.8	40.5	70.9	43.7	376.0	29.2
Sugar maple	.0	44.3	38.1	55.7	22.2	25.5	106.7	.0	292.5	26.5
Hickory	.0	102.2	121.2	107.0	78.3	36.5	65.7	15.8	526.8	17.2
Beech	.0	22.7	18.2	20.2	34.5	27.3	144.5	65.7	333.1	28.8
White ash	.0	70.3	84.5	62.7	67.0	42.1	27.8	1.9	356.3	14.6
Black walnut	.0	23.0	36.9	14.3	13.9	4.4	1.8	.0	94.2	22.8
Yellow-poplar	.0	7.5	6.9	2.7	9.1	4.1	5.4	.0	35.8	41.3
Sycamore	.0	8.2	12.6	8.9	24.9	8.8	28.4	17.1	108.9	31.3
Aspen	.0	17.6	15.0	9.5	5.7	9.6	14.0	36.4	107.7	24.7
Black cherry	.0	42.6	48.2	8.1	34.6	21.2	32.4	4.9	192.0	34.5
Select white oaks	.0	31.5	40.7	38.5	48.2	32.7	90.8	58.8	341.2	20.7
Select red oaks	.0	9.2	14.4	22.4	49.3	15.6	78.5	69.0	258.4	25.6
Other red oaks	.0	20.8	36.0	42.4	27.3	14.9	51.7	9.3	202.5	31.7
Elm	.0	45.3	14.6	10.9	10.7	14.2	10.1	.0	105.9	26.7
Other hardwoods	.0	39.8	39.2	39.5	42.0	6.1	52.8	16.4	235.9	18.2
Total hardwoods	.0	534.9	602.3	476.5	529.6	303.4	781.5	339.0	3,567.3	6.8
Total, all species	23.3	560.5	614.5	484.6	540.2	303.4	783.0	339.0	3,648.6	6.6
SE	55.2	8.6	8.9	10.5	11.8	13.7	12.9	21.0	6.6	

Table 72. Net volume of sawtimber trees on timberland by forest type and stand-size class, Northwestern Unit, Ohio, 1991

(In millions of board feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	26.1	.0	.0	.0	26.1	100.0
White pine	63.8	.0	.0	.0	63.8	70.4
White/red pine group	89.9	.0	.0	.0	89.9	57.8
Post, black, or bear oak	20.6	.0	.0	.0	20.6	100.0
White oak/red oak/hickory	411.4	81.1	27.1	.0	519.6	25.8
White oak	60.6	22.1	.0	.0	82.8	75.0
Northern red oak	137.7	.0	1.7	.0	139.4	60.6
Hawthorn/reverting field	.0	.0	13.5	.0	13.5	82.3
Scarlet oak	82.1	.0	.0	.0	82.1	100.0
Red maple/central hardwood	79.2	.0	.0	.0	79.2	77.4
Mixed central hardwoods	663.1	61.7	45.8	.0	770.6	18.5
Oak/hickory group	1,454.8	165.0	88.1	.0	1,707.8	12.9
Black ash/Amer. elm/red maple	156.2	32.9	5.9	.0	195.0	43.2
Red maple(upland)	29.1	.0	.0	.0	29.1	100.0
Cottonwood	27.0	.0	.0	.0	27.0	85.9
Willow	54.0	.0	.0	.0	54.0	100.0
Sycamore/pecan/American elm	94.4	.0	5.7	.0	100.1	57.5
American elm/green ash	94.3	.0	.0	.0	94.3	58.2
Elm/ash/red maple group	455.0	32.9	11.6	.0	499.5	25.3
Sugar maple/beech/yellow birch	573.8	50.7	.0	.0	624.5	28.9
Black Cherry	54.5	.0	4.7	.0	59.1	92.4
Red maple/northern hardwoods	318.5	.0	.0	.0	318.5	51.7
Mixed northern hardwoods	195.0	141.7	1.9	.0	338.6	26.6
Northern hardwoods group	1,141.8	192.4	6.6	.0	1,340.8	17.2
Aspen	.0	10.4	.0	.0	10.4	89.3
Aspen/birch group	.0	10.4	.0	.0	10.4	89.3
All forest types	3,141.5	400.7	106.3	.0	3,648.6	6.6
SE	8.4	18.8	31.7	.0	6.6	

Table 73. Net volume of growing-stock trees on timberland by species and diameter class, Northwestern Unit, Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	.3	2.4	3.9	2.2	.5	.0	.0	.0	.0	.0	9.3	76.0
White pine	1.8	3.8	4.2	4.2	2.3	1.8	2.2	.0	.3	.0	20.5	60.1
Other softwoods	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.9	100.0
Total softwoods	2.1	7.1	8.0	6.5	2.8	1.8	2.2	.0	.3	.0	30.7	48.7
Red Maple	4.1	7.8	12.0	13.3	18.5	7.9	14.1	8.4	13.5	7.8	107.4	26.6
Sugar maple	10.5	11.9	9.6	11.5	9.0	12.8	4.8	5.1	23.7	.0	99.0	18.9
Hickory	13.1	28.1	35.8	28.0	29.2	23.7	16.5	7.3	12.9	2.8	197.4	13.3
Beech	1.1	2.7	1.5	5.8	4.4	4.9	7.5	5.8	29.6	12.6	75.8	26.6
White ash	10.8	17.3	25.8	17.5	20.2	14.6	15.4	8.9	5.8	.4	136.8	11.4
Black walnut	1.3	1.7	3.5	6.3	9.0	3.5	3.6	.9	.3	.0	30.0	20.8
Yellow-poplar	.6	.5	3.6	2.1	1.9	.6	1.8	.9	1.0	.0	13.0	43.2
Sycamore	.0	.7	.0	2.1	3.2	2.1	5.4	1.7	5.8	3.5	24.6	31.3
Aspen	1.8	3.1	3.9	4.3	3.2	2.2	1.1	2.0	2.6	6.6	30.8	24.2
Black cherry	3.5	4.2	8.0	11.2	11.1	2.1	7.3	4.1	5.8	.9	58.1	26.5
Select white oaks	2.9	7.5	7.6	8.0	9.1	8.6	10.6	6.9	17.8	11.5	90.5	18.5
Select red oaks	1.6	5.3	4.3	2.6	3.9	5.6	11.5	3.5	16.1	13.1	67.6	21.3
Other white oaks	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.2	100.0
Other red oaks	2.4	4.0	2.4	6.1	8.7	9.6	6.4	3.2	11.8	2.1	56.6	28.8
Black locust	.2	.6	.4	.0	.0	.0	.0	.0	.0	.0	1.2	73.1
Elm	17.9	19.1	14.8	12.3	3.7	2.6	2.3	3.2	2.0	.0	77.9	14.9
Other hardwoods	14.2	10.9	11.2	10.8	9.1	8.7	8.5	1.2	10.9	3.2	88.7	13.8
Total hardwoods	86.2	125.5	144.4	142.0	144.4	109.4	116.6	63.0	159.8	64.5	1,155.7	5.5
Total, all species	88.2	132.6	152.4	148.5	147.2	111.1	118.8	63.0	160.0	64.5	1,186.3	5.4
SE	7.9	8.4	8.8	8.6	8.8	10.2	11.4	13.6	12.6	21.3	5.4	

Table 74. Net volume of growing-stock trees on timberland by forest type and stand-size class, Northwestern Unit, Ohio, 1991

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	8.9	.0	.0	.0	8.9	100.0
White pine	25.4	.0	.0	.0	25.4	67.2
White/red pine group	34.3	.0	.0	.0	34.3	56.1
Post, black, or bear oak	5.6	.0	.0	.0	5.6	100.0
White oak/red oak/hickory	120.9	51.2	11.2	.0	183.3	23.3
White oak	13.4	19.6	.0	.0	33.0	54.6
Northern red oak	33.8	.0	.4	.0	34.2	59.6
Hawthorn/reverting field	.0	.0	3.9	.0	3.9	70.8
Scarlet oak	19.9	.0	.0	.0	19.9	100.0
Red maple/central hardwood	21.6	.0	.0	.0	21.6	75.4
Mixed central hardwoods	198.9	34.7	15.6	.0	249.2	17.4
Oak/hickory group	414.2	105.5	31.1	.0	550.8	11.4
Black ash/Amer. elm/red maple	51.4	25.4	8.6	.0	85.4	36.9
Red maple(upland)	12.4	.0	.0	.0	12.4	100.0
Cottonwood	8.6	.0	.0	.0	8.6	87.6
Willow	12.4	.0	.0	.0	12.4	100.0
Sycamore/pecan/American elm	29.7	.0	2.1	.0	31.8	55.5
American elm/green ash	28.3	.0	.0	.0	28.3	58.8
Elm/ash/red maple group	142.9	25.4	10.7	.0	179.0	23.6
Sugar maple/beech/yellow birch	139.9	23.2	.0	.0	163.1	27.0
Black Cherry	19.4	.0	5.3	.0	24.7	80.8
Red maple/northern hardwoods	83.5	.0	.0	.0	83.5	48.5
Mixed northern hardwoods	61.9	81.6	1.4	.0	144.8	23.3
Northern hardwoods group	304.7	104.8	6.7	.0	416.2	14.9
Aspen	.0	6.0	.0	.0	6.0	71.7
Aspen/birch group	.0	6.0	.0	.0	6.0	71.7
All forest types	896.1	241.7	48.6	.0	1,186.3	5.4
SE	8.0	16.8	30.1	.0	5.4	

Table 75. Average annual net change of growing-stock volume on timberland by species and component of change, Northwestern Unit, Ohio, 1991

(In thousands of cubic feet)

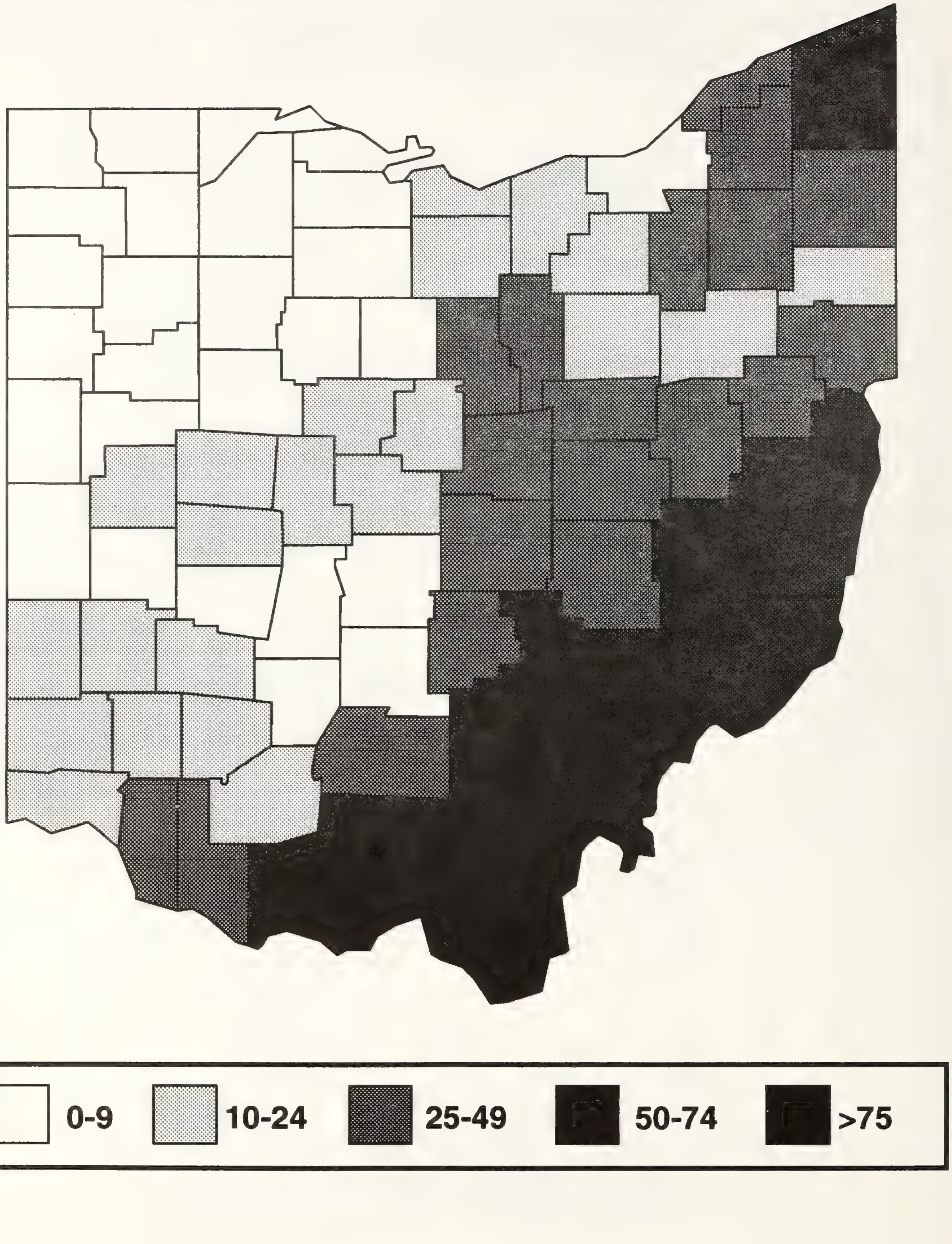
Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
Red pine	169	179	348	-16	0	0	333	0	333
White pine	127	792	919	-52	0	0	866	0	866
Other softwoods	72	0	72	0	0	0	72	0	72
Total softwoods	368	971	1,339	-68	0	0	1,271	0	1,271
Red Maple	1,359	2,605	3,965	-81	530	-47	4,367	-177	4,189
Sugar maple	847	2,091	2,938	-104	450	-64	3,219	-804	2,415
Hickory	1,079	3,456	4,535	-538	256	0	4,253	-1,838	2,415
Beech	300	1,112	1,412	-284	1,118	-95	2,151	-555	1,595
White ash	1,752	3,308	5,060	-863	610	-184	4,622	-1,107	3,516
Black walnut	270	665	936	-118	161	0	979	-189	790
Yellow-poplar	199	437	636	-7	0	0	629	0	629
Sycamore	18	498	516	0	96	0	611	-331	280
Aspen	948	566	1,514	-208	31	0	1,337	-510	827
Black cherry	633	1,214	1,847	-183	487	-18	2,132	-236	1,896
Select white oaks	567	1,781	2,348	-238	755	-68	2,797	-1,581	1,216
Select red oaks	611	1,629	2,240	-472	289	-216	1,841	-461	1,380
Other white oaks	0	11	11	0	0	0	11	0	11
Other red oaks	358	1,416	1,774	-112	53	-103	1,613	-661	952
Black locust	30	19	49	0	0	0	49	-30	19
Elm	1,818	2,049	3,867	-647	90	-72	3,237	-855	2,383
Other hardwoods	1,796	1,756	3,552	-347	342	-168	3,379	-432	2,947
Total hardwoods	12,585	24,615	37,201	-4,204	5,268	-1,036	37,227	-9,766	27,461
Total, all species	12,953	25,586	38,539	-4,272	5,268	-1,036	38,499	-9,766	28,733

Table 76. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species, Northwestern Unit, Ohio, 1991

(In thousands of cubic feet/board feet)

Species	Growing stock			Sawtimber		
	Net growth	Removals	Mortality	Net growth	Removals	Mortality
Red pine	333	0	-16	742	0	0
White pine	866	0	-52	3,366	0	0
Other softwoods	72	0	0	0	0	0
Total softwoods	1,271	0	-68	4,108	0	0
Red Maple	4,367	-177	-81	15,579	-832	-115
Sugar maple	3,219	-804	-104	8,870	-4,906	-312
Hickory	4,253	-1,838	-538	13,888	-6,843	-1,657
Beech	2,151	-555	-284	5,701	-3,171	-2,097
White ash	4,622	-1,107	-863	15,691	-4,615	-1,621
Black walnut	979	-189	-118	4,207	-678	-95
Yellow-poplar	629	0	-7	1,935	0	0
Sycamore	611	-331	0	2,774	-1,858	0
Aspen	1,337	-510	-208	4,752	-4,413	-814
Black cherry	2,132	-236	-183	8,875	-531	-311
Select white oaks	2,797	-1,581	-238	12,184	-8,940	-667
Select red oaks	1,841	-461	-472	4,535	-2,636	-3,077
Other white oaks	11	0	0	0	0	0
Other red oaks	1,613	-661	-112	5,882	-3,625	-473
Black locust	49	-30	0	0	0	0
Elm	3,237	-855	-647	5,933	-2,758	-949
Other hardwoods	3,379	-432	-347	6,162	-2,289	-2,110
Total hardwoods	37,227	-9,766	-4,204	116,968	-48,095	-14,301
Total, all species	38,499	-9,766	-4,272	121,077	-48,095	-14,301

PERCENT TIMBERLAND



COUNTY-LEVEL TABLES

County-level estimates are the basic building blocks for forest-area and volume. One of the prerequisites for developing county-level statistics is that a county must have at least 60,000 acres of timberland. Counties that do not meet this criterion have too few plots to allow reliable estimates. Such counties are grouped with a neighboring county or counties to form a sampling base large enough to provide reliable estimates. We call these counties super counties. Because they contain such low acreages of timberland, as many as six counties may be grouped into one super county. Altogether, 58 counties have been grouped into 19 super counties for reporting purposes. Lake and Geauga Counties in the Northeastern Unit are examples of such a sampling base.

AREA AND VOLUME

Forest statistics for area and volume are provided at the county level. Estimates that are provided at the county level help landowners make more informed decisions. Inferences to localized areas can be made to assess the current situation. However, not all area and volume statistics are useful because of high sampling errors, which indicate that certain estimates are unreliable at the county level.

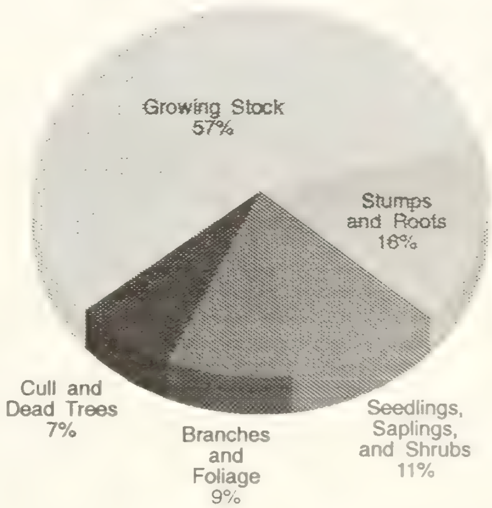
Volume statistics have proven useful to resources planners and managers for quantifying the timber supply and for tracking changes in the timber resource over time. But conventional methods of measuring timber volume do not always adequately define total forest quantities to acceptable levels of precision, and so have limited application to the kinds of assessments that resource planners, managers, and researchers need today. Only through biomass assessments are we able to adequately assess the complete forest resource.

BIOMASS

Biomass statistics are reported in dry weight. Regional regression analysis is used to estimate green weight biomass (only of the merchantable stem), and a combination of regression analysis and conversion factors are used to estimate and compartmentalize dry weight biomass of the entire forest resource into individual components. A complete description of the analytical procedures and application of biomass regression techniques, particularly as they apply to the Northeastern United States is included in Wharton and Griffith (1992).

The biomass estimates show how volume estimates are limiting. The amount of material in growing stock represents only a little more than half of the total forest resource, or 57 percent. Additional sources include: (1) the stump-root system of growing-stock trees, 16 percent; (2) branches and foliage of growing-stock trees, 9 percent; (3) cull trees and salvable dead trees, 7 percent; and (4) seedlings, saplings and shrubs, 11 percent.

DISTRIBUTION OF BIOMASS



There is also a significant amount of biomass on other forest land, which includes, among other things, unproductive forest land. By USDA Forest Service definition, unproductive forest land is incapable of producing commercial crops of timber. This definition is biased toward timber harvesting but in no way reflects upon the capability of such an area to provide other goods and services. Biomass from this land class is a necessary component of the biological potential of an area and has been included in our resource assessments dealing with the total forest resource.

Table 77. Net land area by county, geographic unit, and land class, Ohio, 1991

(In thousands of acres)

Counties	Land class						All classes
	Timberland	Other forest land[a]	Reserved timberland	Other reserved forest land	Total forest land	Nonforest land	
Adams	236.3	.0	.5	.0	236.8	137.0	373.8
Brown	107.8	.0	.0	.0	107.8	206.9	314.7
Clermont	107.8	1.8	6.9	.0	116.6	172.7	289.3
Gallia	184.6	.0	.0	.0	184.6	115.5	300.0
Highland	85.3	.0	2.6	.0	87.9	266.2	354.1
Jackson	166.0	.0	1.7	.0	167.7	101.3	269.0
Lawrence	225.7	.0	.0	.0	225.7	65.8	291.4
Pike	178.5	.0	.7	.0	179.2	103.4	282.6
Ross	164.0	.0	4.0	.0	168.0	272.6	440.6
Scioto	280.9	.0	.5	.0	281.4	110.5	391.9
South-Central Unit	1,737.0	1.8	16.9	.0	1,755.8	1,551.7	3,307.5
Athens	203.3	.0	3.0	.0	206.3	118.1	324.3
Meigs	194.7	.0	1.3	.0	196.0	78.8	274.8
Vinton	205.1	.0	3.1	.0	208.2	56.9	265.0
Hocking,Perry	326.7	.0	4.6	.0	331.3	201.7	533.0
Morgan,Washington	394.7	.0	5.9	.0	400.6	273.2	673.9
Southeastern Unit	1,324.5	.0	17.9	.0	1,342.4	728.7	2,071.1
Belmont	179.1	2.5	.7	.0	182.3	161.5	343.8
Carroll	112.0	.0	.1	.0	112.1	140.5	252.6
Coshocton	169.2	.0	.1	.0	169.3	191.8	361.0
Guernsey	182.5	3.8	1.2	.0	187.5	146.5	334.1
Harrison	156.2	.0	.1	.0	156.3	102.1	258.3
Holmes	81.0	.0	1.4	.0	82.4	188.3	270.7
Jefferson	150.1	.0	.9	.0	151.0	111.1	262.1
Monroe	204.0	.0	.0	.0	204.0	87.6	291.6
Muskingum	210.8	.0	3.3	.0	214.1	211.4	425.4
Noble	134.3	.0	1.1	.0	135.4	120.0	255.3
Tuscarawas	157.5	2.5	.2	.0	160.2	203.0	363.3
East-Central Unit	1,736.7	8.9	9.1	.0	1,754.7	1,663.7	3,418.4

Table 77. continued

(In thousands of acres)

Counties	Land class						All classes
	Timberland	Other forest land[a]	Reserved timberland	Other reserved forest land	Total forest land	Nonforest land	
Ashtabula	225.7	.0	3.6	.0	229.3	220.4	449.8
Columbiana	144.7	.0	2.3	.0	147.0	193.8	340.8
Cuyahoga	.0	48.6	5.4	.0	54.0	239.3	293.3
Mahoning	58.5	3.8	1.0	.0	63.3	202.4	265.7
Trumbull	139.2	.0	.3	.0	139.5	254.6	394.1
Ashland, Richland	149.5	.0	1.7	.0	151.2	438.5	589.7
Erie, Huron	68.1	.0	3.4	.0	71.5	407.1	478.6
Lorain, Medina	117.1	6.7	2.6	.0	126.4	458.7	585.1
Portage, Summit	192.5	7.8	19.7	.0	220.0	359.4	579.4
Stark, Wayne	113.7	6.0	.7	.0	120.4	603.8	724.2
Geauga, Lake	153.5	30.8	.8	.0	185.1	219.6	404.7
Northeastern Unit	1,362.5	103.8	41.6	.0	1,507.9	3,597.5	5,105.4
Butler, Hamilton	87.4	17.1	.9	.0	105.4	454.5	559.8
Clark, Darke, Miami	74.4	.0	2.5	.0	76.9	823.5	900.4
Clinton, Greene, Montgomery Preble, Warren	174.9	.0	8.9	.0	183.8	1,168.0	1,351.8
Fairfield, Licking	206.4	9.1	1.0	.0	216.5	546.6	763.1
Fayette, Franklin, Madison, Pickaway	66.3	.0	1.2	.0	67.5	1,157.5	1,225.0
Southwestern Unit	609.3	26.2	14.5	.0	650.0	4,150.1	4,800.1
Knox	97.8	.0	.0	.0	97.8	239.5	337.3
Allen, Auglaize, Mercer, Putnam, Van Wert	95.7	9.0	5.2	.0	109.9	1,274.4	1,384.3
Champaign, Logan, Shelby, Union	151.3	.0	2.6	.0	153.9	955.3	1,109.2
Crawford, Hardin, Wyandot	71.1	.0	.3	.0	71.4	746.7	818.1
Delaware, Marion, Morrow	126.4	.0	4.1	.0	130.1	670.8	801.2
Hancock, Ottawa, Sandusky, Seneca, Wood	134.6	.0	25.8	.0	160.4	1,352.6	1,513.0
Defiance, Fulton, Henry, Lucas, Paulding, Williams	120.6	7.2	1.9	.0	129.7	1,414.7	1,542.5
Northwestern Unit	797.5	16.2	39.9	.0	853.6	6,654.0	7,507.6
Total, all counties	7,567.4	156.8	139.9	.0	7,864.1	18,345.8	26,209.7

[a] Includes Christmas tree plantations, urban, and unproductive forest land.

Table 78. Area of timberland by county, geographic unit, and ownership class, Ohio, 1991

(In thousands of acres)

Counties	Ownership class								All ownerships
	National Forest	Other public[a]	State	County and municipal	Forest industry	Farmer	Corporate	Individual	
Adams	.0	.0	18.4	.0	.0	55.1	27.7	135.1	236.3
Brown	.0	.0	.9	.0	.0	44.8	.0	62.1	107.8
Clermont	.0	.0	.0	.0	.0	9.6	13.3	84.9	107.8
Gallia	12.7	.0	.3	2.6	4.3	47.9	9.6	107.2	184.6
Highland	.0	.0	1.2	.0	.0	25.7	.0	58.4	85.3
Jackson	1.5	.0	7.0	1.3	40.4	8.2	17.2	90.4	166.0
Lawrence	56.2	.0	2.9	2.4	.0	35.7	39.4	89.1	225.7
Pike	.0	.0	11.6	.0	23.7	16.6	7.0	119.6	178.5
Ross	.0	.0	24.0	.0	3.5	2.7	12.6	121.2	164.0
Scioto	9.4	.0	58.8	.0	31.9	36.0	13.9	130.9	280.9
South-Central Unit	79.8	.0	125.1	6.3	103.8	282.3	140.8	998.9	1,737.0
Athens	13.1	.0	7.1	.0	4.6	4.2	38.9	135.4	203.3
Meigs	.0	.0	2.6	.3	.0	20.5	17.4	153.9	194.7
Vinton	1.6	.0	26.7	.0	39.3	.0	24.7	112.8	205.1
Hocking, Perry	37.3	.0	13.6	.0	23.7	55.8	28.3	168.0	326.7
Morgan, Washington	35.8	.0	3.2	1.4	2.4	88.2	43.3	220.4	394.7
Southeastern Unit	87.8	.0	53.3	1.7	70.0	168.6	152.7	790.4	1,324.5
Belmont	.0	3.8	.0	.0	.0	36.0	62.0	77.3	179.1
Carroll	.0	3.7	.4	.0	.0	18.7	.0	88.9	112.0
Coshocton	.0	4.3	1.8	.0	.0	41.6	36.3	85.2	169.2
Guernsey	.0	.6	6.6	.0	.0	47.6	15.2	112.5	182.5
Harrison	.0	9.7	1.3	2.7	.0	40.1	45.3	57.1	156.2
Holmes	.0	.0	.5	1.0	.0	34.9	11.5	33.1	81.0
Jefferson	.0	.0	4.3	1.4	.0	26.9	21.9	95.6	150.1
Monroe	19.8	.0	1.6	.0	.0	46.3	7.7	128.6	204.0
Muskingum	.0	.8	7.4	.0	.0	12.4	34.3	155.9	210.8
Noble	.4	3.1	.0	.0	2.1	22.3	29.1	77.3	134.3
Tuscarawas	.0	1.5	1.0	.0	.0	25.5	11.7	118.0	157.5
East-Central Unit	20.2	27.5	25.0	5.1	2.1	352.1	275.0	1,029.7	1,736.7

Table 78. continued

(In thousands of acres)

Counties	Ownership class								All ownerships
	National Forest	Other public[a]	State	County and municipal	Forest industry	Farmer	Corporate	Individual	
Ashtabula	.0	.0	.6	.0	.0	21.3	7.2	196.6	225.7
Columbiana	.0	.0	2.7	.0	.0	26.4	18.7	96.9	144.7
Mahoning	.0	.0	.3	6.0	.0	9.9	7.9	34.4	58.5
Trumbull	.0	.0	7.5	.1	.0	22.3	28.5	80.8	139.2
Ashland, Richland	.0	2.2	4.4	.7	.0	101.0	4.2	37.0	149.5
Erie, Huron	.0	.0	2.6	8.8	.0	50.0	4.4	2.3	68.1
Lorain, Medina	.0	.0	.4	.0	.0	33.9	8.5	74.3	117.1
Portage, Summit	.0	4.5	.3	4.0	.0	25.1	48.6	110.0	192.5
Stark, Wayne	.0	.6	1.7	.0	.0	53.7	8.0	49.7	113.7
Geauga, Lake	.0	.0	1.5	8.8	.0	3.3	23.7	116.2	153.5
Northeastern Unit	.0	7.3	22.0	28.4	.0	346.8	159.8	798.2	1,362.5
Butler, Hamilton	.0	.0	.1	.1	.0	26.5	12.1	48.6	87.4
Clark, Darke, Miami	.0	.0	.3	3.9	.0	31.2	.0	39.0	74.4
Clinton, Greene, Montgomery Preble, Warren	.0	.0	1.8	.9	.0	70.7	15.6	85.9	174.9
Fairfield, Licking	.0	.0	.1	.0	.0	55.4	22.1	128.8	206.4
Fayette, Franklin, Madison, Pickaway	.0	.0	.1	.0	.0	31.8	8.6	25.7	66.3
Southwestern Unit	.0	.0	2.5	4.9	.0	215.6	58.4	327.9	609.3
Knox	.0	.4	.0	.1	.0	31.4	8.4	57.6	97.8
Allen, Auglaize, Mercer, Putnam, Van Wert	.0	.0	.1	1.2	.0	75.2	.0	19.2	95.7
Champaign, Logan, Shelby, Union	.0	.0	.0	.5	.0	67.3	15.1	68.4	151.3
Crawford, Hardin, Wyandot	.0	.0	2.4	.0	.0	57.3	.0	11.4	71.1
Delaware, Marion, Morrow	.0	.0	.7	.8	.0	36.1	4.8	84.0	126.4
Hancock, Ottawa, Sandusky, Seneca, Wood	.0	.0	1.3	.2	.0	68.7	15.6	48.8	134.6
Defiance, Fulton, Henry, Lucas, Paulding, Williams	.0	.0	4.3	4.4	.0	63.3	22.8	25.8	120.6
Northwestern Unit	.0	.4	8.9	7.2	.0	399.3	66.6	315.1	797.5
Total, all counties	187.8	32.2	236.8	53.6	175.8	1,764.7	853.5	4,263.0	7,567.4

[a] Includes inter-governmental and miscellaneous federal timberland.

Table 79. Area of timberland by county, geographic unit, and stand-size class, Ohio, 1991

(In thousands of acres)

Counties	Stand-size class				All classes
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Adams	135.8	52.0	48.5	.0	236.3
Brown	55.7	26.8	25.3	.0	107.8
Clermont	44.4	20.3	43.1	.0	107.8
Gallia	56.6	52.0	76.0	.0	184.6
Highland	60.6	11.6	13.2	.0	85.3
Jackson	58.1	53.1	54.8	.0	166.0
Lawrence	124.2	32.5	69.1	.0	225.7
Pike	94.6	44.2	39.7	.0	178.5
Ross	90.9	41.8	31.4	.0	164.0
Scioto	182.1	37.1	61.7	.0	280.9
South-Central Unit	903.0	371.3	462.7	.0	1,737.0
Athens	131.9	40.2	31.2	.0	203.3
Meigs	115.7	28.8	50.2	.0	194.7
Vinton	118.4	52.4	34.3	.0	205.1
Hocking,Perry	178.7	87.7	60.3	.0	326.7
Morgan,Washington	174.6	120.3	99.9	.0	394.7
Southeastern Unit	719.2	329.4	275.9	.0	1,324.5
Belmont	100.4	27.6	51.1	.0	179.1
Carroll	60.8	17.6	33.6	.0	112.0
Coshocton	89.4	34.7	45.0	.0	169.2
Guernsey	73.5	49.7	59.3	.0	182.5
Harrison	53.4	43.5	59.2	.0	156.2
Holmes	52.6	22.8	5.6	.0	81.0
Jefferson	79.1	40.6	25.9	4.7	150.1
Monroe	162.6	34.8	6.6	.0	204.0
Muskingum	71.2	61.0	78.6	.0	210.8
Noble	49.9	35.5	49.0	.0	134.3
Tuscarawas	73.9	35.4	48.2	.0	157.5
East-Central Unit	866.8	403.1	462.1	4.7	1,736.7

Table 79. continued

(In thousands of acres)

Counties	Stand-size class				Allclasses
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Ashtabula	50.9	104.4	70.4	.0	225.7
Columbiana	66.6	30.5	47.7	.0	144.7
Mahoning	34.3	7.6	16.6	.0	58.5
Trumbull	65.3	38.3	35.6	.0	139.2
Ashland,Richland	95.9	35.2	18.4	.0	149.5
Erie,Huron	45.1	9.3	13.7	.0	68.1
Lorain,Medina	81.1	23.8	12.1	.0	117.1
Portage,Summit	80.3	50.9	61.3	.0	192.5
Stark,Wayne	47.6	30.2	35.8	.0	113.7
Geauga,Lake	89.4	39.9	24.2	.0	153.5
Northeastern Unit	656.6	370.1	335.8	.0	1,362.5
Butler,Hamilton	42.6	20.8	23.9	.0	87.4
Clark,Darke,Miami	46.0	6.2	22.2	.0	74.4
Clinton,Greene,Montgomery Preble,Warren	101.5	8.2	65.2	.0	174.9
Fairfield,Licking	139.5	41.8	25.1	.0	206.4
Fayette,Franklin, Madison,Pickaway	43.1	.0	23.2	.0	66.3
Southwestern Unit	372.6	77.1	159.6	.0	609.3
Knox	55.5	31.4	11.0	.0	97.8
Allen,Auglaize,Mercer, Putnam,Van Wert	80.1	6.6	9.0	.0	95.7
Champaign,Logan,Shelby, Union	65.4	53.3	32.6	.0	151.3
Crawford,Hardin,Wyandot	65.0	6.1	.0	.0	71.1
Delaware,Marion,Morrow	74.8	29.7	21.8	.0	126.4
Hancock,Ottawa,Sandusky, Seneca,Wood	77.4	28.9	28.3	.0	134.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	73.9	33.9	12.7	.0	120.6
Northwestern Unit	492.2	189.8	115.4	.0	797.5
Total, all counties	4,010.4	1,740.8	1,811.6	4.7	7,567.4

Table 80. Area of timberland by county, geographic unit, and forest-type group, Ohio, 1991

(In thousands of acres)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Adams	.0	.0	17.8	9.6	146.3	.0	9.8	52.8	.0	236.3	5.0
Brown	.0	.0	.0	.0	102.1	.0	.0	5.7	.0	107.8	10.5
Clermont	.0	.0	.0	.0	47.3	.0	23.7	36.8	.0	107.8	8.3
Gallia	.0	.0	15.8	15.8	129.6	.0	6.5	16.9	.0	184.6	3.8
Highland	.0	.0	.0	.0	72.2	.0	3.9	9.3	.0	85.3	10.9
Jackson	2.5	.0	8.0	.0	137.0	.0	3.2	9.7	5.7	166.0	5.8
Lawrence	.0	.0	11.2	.0	204.0	.0	.0	10.5	.0	225.7	4.3
Pike	.0	.0	.0	9.3	119.9	.0	4.5	44.8	.0	178.5	3.0
Ross	.0	.0	.0	.0	109.1	.0	15.1	39.8	.0	164.0	9.1
Scioto	.0	.0	1.7	3.5	229.6	.0	10.9	35.2	.0	280.9	3.0
South-Central Unit	2.5	.0	54.5	38.1	1,297.2	.0	77.6	261.5	5.7	1,737.0	1.8
Athens	1.2	.0	.6	1.2	157.2	.0	13.1	29.9	.0	203.3	5.6
Meigs	.0	.0	9.7	15.9	150.4	.0	14.1	4.5	.0	194.7	5.1
Vinton	5.1	.0	3.5	10.2	157.5	.0	3.6	20.1	5.1	205.1	2.4
Hocking,Perry	5.7	.0	.0	8.3	201.9	.0	36.0	71.1	3.5	326.7	4.2
Morgan,Washington	2.4	.0	13.1	.0	258.0	.0	29.3	92.0	.0	394.7	4.1
Southeastern Unit	14.5	.0	27.0	35.7	925.0	.0	96.1	217.6	8.6	1,324.5	2.0
Belmont	3.5	.0	.0	.0	84.9	.0	32.8	54.4	3.5	179.1	7.8
Carroll	2.8	.0	.0	.0	81.0	.0	4.4	23.8	.0	112.0	6.6
Coshocton	7.2	.0	.0	.0	92.9	.0	24.2	44.8	.0	169.2	6.9
Guernsey	14.9	.0	.0	7.3	136.0	.0	3.3	17.7	3.3	182.5	8.8
Harrison	10.6	.0	.0	3.9	81.0	.0	14.3	46.2	.0	156.2	7.3
Holmes	.0	.0	.0	5.8	46.3	.0	17.1	11.7	.0	81.0	12.3
Jefferson	3.2	.0	.0	.0	51.0	.0	25.9	70.0	.0	150.1	6.2
Monroe	.0	.0	7.2	7.2	163.5	.0	7.2	18.8	.0	204.0	2.6
Muskingum	.0	.0	.0	.0	141.8	.0	14.3	43.1	11.6	210.8	4.2
Noble	7.0	.0	.0	.0	62.7	.0	20.7	43.9	.0	134.3	10.0
Tuscarawas	2.5	.0	.0	5.7	91.9	.0	5.4	45.7	6.3	157.5	9.8
East-Central Unit	51.7	.0	7.2	30.0	1,033.2	.0	169.6	420.3	24.6	1,736.7	2.2

Table 80. continued

(In thousands of acres)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Ashtabula	1.5	.0	.0	.0	97.8	2.1	25.8	98.6	.0	225.7	6.3
Columbiana	.0	.0	.0	.0	65.1	.0	.0	73.9	5.7	144.7	8.2
Mahoning	4.3	.0	.0	.0	33.8	.0	16.7	3.8	.0	58.5	21.1
Trumbull	2.0	.0	.0	.0	75.3	.0	39.3	22.7	.0	139.2	11.3
Ashland,Richland	4.2	.0	.0	.0	42.3	.0	9.9	93.1	.0	149.5	11.0
Erie,Huron	.0	.0	.0	.0	8.8	.0	23.0	36.3	.0	68.1	18.2
Lorain,Medina	.0	.0	.0	.0	66.6	.0	27.4	23.1	.0	117.1	14.7
Portage,Summit	.0	.0	.0	.0	60.3	.0	41.5	86.4	4.3	192.5	9.9
Stark,Wayne	4.4	.0	.0	.0	42.5	.0	15.3	43.4	8.0	113.7	12.5
Geauga,Lake	.0	.0	.0	.0	30.1	.0	20.2	103.2	.0	153.5	13.0
Northeastern Unit	16.3	.0	.0	.0	522.5	2.1	219.1	584.4	18.1	1,362.5	3.6
Butler,Hamilton	.0	.0	.0	.0	23.2	.0	30.9	33.2	.0	87.4	17.6
Clark,Darke,Miami	.0	.0	.0	.0	32.6	.0	24.8	17.0	.0	74.4	20.0
Clinton,Greene,Montgomery Preble,Warren	.0	.0	.0	.0	50.9	.0	36.0	88.0	.0	174.9	10.4
Fairfield,Licking	7.5	5.8	.0	7.9	100.4	.0	35.9	43.4	5.4	206.4	9.9
Fayette,Franklin, Madison,Pickaway	.0	.0	.0	.0	40.4	.0	25.8	.0	.0	66.3	17.0
Southwestern Unit	7.5	5.8	.0	7.9	247.6	.0	153.5	181.7	5.4	609.3	6.0
Knox	8.4	.0	.0	.0	31.9	.0	11.0	46.6	.0	97.8	8.2
Allen,Auglaize,Mercer, Putnam,Van Wert	.0	.0	.0	.0	67.2	.0	19.5	9.0	.0	95.7	9.0
Champaign,Logan,Shelby, Union	.0	.0	.0	.0	59.9	.0	29.1	56.1	6.1	151.3	10.5
Crawford,Hardin,Wyandot	.0	.0	.0	.0	32.3	.0	12.1	26.7	.0	71.1	13.7
Delaware,Marion,Morrow	.0	.0	.0	.0	41.7	.0	34.9	49.8	.0	126.4	14.0
Hancock,Ottawa,Sandusky, Seneca,Wood	.0	.0	.0	.0	84.7	.0	16.2	29.4	4.4	134.6	9.9
Defiance,Fulton,Henry, Lucas,Paulding,Williams	2.7	.0	.0	.0	62.3	.0	18.0	37.5	.0	120.6	12.0
Northwestern Unit	11.1	.0	.0	.0	380.0	.0	140.8	255.1	10.5	797.5	4.3
Total, all counties	103.6	5.8	88.7	111.7	4,405.4	2.1	856.7	1,920.6	72.8	7,567.4	1.2
SE	21.7	100.0	20.7	21.0	2.4	100.0	8.0	4.7	25.0	1.2	

Table 81. Area of timberland by county, geographic unit, and stocking class of growing-stock trees, Ohio, 1991

(In thousands of acres)

Counties	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Adams	.0	8.5	75.9	75.0	77.0	236.3
Brown	.0	16.1	24.6	29.1	38.0	107.8
Clermont	.0	7.1	11.4	54.1	35.2	107.8
Gallia	.0	23.8	35.3	70.8	54.7	184.6
Highland	.0	.0	31.0	31.1	23.2	85.3
Jackson	.0	19.7	65.4	31.1	49.9	166.0
Lawrence	.0	21.9	38.9	91.6	73.2	225.7
Pike	.0	23.6	61.0	51.2	42.7	178.5
Ross	.0	10.6	48.2	50.9	54.4	164.0
Scioto	.0	6.1	57.6	120.9	96.4	280.9
South-Central Unit	.0	137.4	449.3	605.8	544.6	1,737.0
Athens	.0	11.7	66.5	86.3	38.7	203.3
Meigs	.0	14.3	65.6	84.7	30.1	194.7
Vinton	.0	11.2	20.1	80.2	93.6	205.1
Hocking,Perry	.0	19.8	86.0	144.8	76.2	326.7
Morgan,Washington	.0	49.4	99.6	146.1	99.6	394.7
Southeastern Unit	.0	106.4	337.8	542.1	338.2	1,324.5
Belmont	.0	13.1	45.5	53.6	66.9	179.1
Carroll	.0	12.5	42.3	30.8	26.5	112.0
Coshocton	.0	9.0	43.5	61.2	55.5	169.2
Guernsey	.0	19.3	16.3	90.3	56.6	182.5
Harrison	6.7	6.5	54.6	49.0	39.4	156.2
Holmes	.0	.0	28.8	34.7	17.5	81.0
Jefferson	4.7	12.3	62.6	39.8	30.8	150.1
Monroe	.0	1.6	48.3	38.7	115.4	204.0
Muskingum	.0	13.9	68.2	88.4	40.3	210.8
Noble	.0	8.3	26.7	57.8	41.4	134.3
Tuscarawas	.0	15.7	44.4	68.6	28.8	157.5
East-Central Unit	11.3	112.3	481.1	612.7	519.2	1,736.7

Table 81. continued

(In thousands of acres)

Counties	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Ashtabula	.0	22.8	47.8	45.0	110.2	225.7
Columbiana	.0	25.9	32.7	45.3	40.9	144.7
Mahoning	.0	6.1	10.3	24.6	17.5	58.5
Trumbull	4.7	8.3	37.3	50.0	38.9	139.2
Ashland, Richland	.0	2.8	26.6	50.0	70.0	149.5
Erie, Huron	.0	.0	18.1	18.1	31.9	68.1
Lorain, Medina	.0	16.6	31.9	28.4	40.2	117.1
Portage, Summit	5.8	19.7	51.4	83.0	32.6	192.5
Stark, Wayne	2.9	6.0	31.7	42.3	30.7	113.7
Geauga, Lake	.0	9.3	27.4	63.6	53.2	153.5
Northeastern Unit	13.5	117.4	315.3	450.3	466.0	1,362.5
Butler, Hamilton	.0	13.6	41.3	15.1	17.3	87.4
Clark, Darke, Miami	.0	.0	34.7	12.6	27.1	74.4
Clinton, Greene, Montgomery Preble, Warren	.0	12.3	55.3	72.7	34.6	174.9
Fairfield, Licking	5.8	14.7	46.3	53.2	86.4	206.4
Fayette, Franklin, Madison, Pickaway	.0	14.6	8.6	25.8	17.2	66.3
Southwestern Unit	5.8	55.3	186.2	179.4	182.6	609.3
Knox	.0	11.0	4.2	46.6	36.1	97.8
Allen, Auglaize, Mercer, Putnam, Van Wert	.0	.0	26.7	31.2	37.9	95.7
Champaign, Logan, Shelby, Union	.0	26.5	72.2	46.8	5.9	151.3
Crawford, Hardin, Wyandot	.0	.0	.0	24.6	46.5	71.1
Delaware, Marion, Morrow	5.9	24.2	10.1	60.7	25.4	126.4
Hancock, Ottawa, Sandusky, Seneca, Wood	.0	22.4	29.6	52.6	30.0	134.6
Defiance, Fulton, Henry, Lucas, Paulding, Williams	.0	10.7	9.0	33.6	67.3	120.6
Northwestern Unit	5.9	94.9	151.7	296.0	248.9	797.5
Total, all counties	36.5	623.7	1,921.4	2,686.3	2,299.5	7,567.4

Table 82. Area of timberland by county, geographic unit, and site-productivity class, Ohio, 1991

(In thousands of acres)

Counties	Productivity class(cuft/a/yr)				All classes
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)	
Adams	6.1	8.0	69.9	152.4	236.3
Brown	6.6	16.8	25.6	58.8	107.8
Clermont	20.7	4.0	38.9	44.2	107.8
Gallia	.0	5.0	37.3	142.3	184.6
Highland	7.8	.0	25.7	51.9	85.3
Jackson	4.0	19.7	31.5	110.8	166.0
Lawrence	.0	21.1	17.3	187.3	225.7
Pike	11.5	4.5	42.4	120.1	178.5
Ross	9.1	10.4	18.5	126.1	164.0
Scioto	6.3	10.8	34.9	228.9	280.9
South-Central Unit	72.1	100.2	342.1	1,222.6	1,737.0
Athens	1.2	16.8	81.0	104.3	203.3
Meigs	.0	4.5	48.7	141.5	194.7
Vinton	10.2	22.9	31.9	140.1	205.1
Hocking,Perry	17.2	56.2	46.6	206.7	326.7
Morgan,Washington	9.8	49.4	111.4	224.2	394.7
Southeastern Unit	38.5	149.7	319.5	816.8	1,324.5
Belmont	.0	9.8	25.1	144.1	179.1
Carroll	4.4	9.7	10.6	87.4	112.0
Coshocton	20.5	17.4	48.3	82.9	169.2
Guernsey	25.8	27.7	46.2	82.7	182.5
Harrison	15.7	3.9	15.0	121.6	156.2
Holmes	.0	5.8	23.0	52.2	81.0
Jefferson	.0	.0	.0	150.1	150.1
Monroe	11.4	32.8	45.6	114.3	204.0
Muskingum	22.3	32.3	42.2	113.9	210.8
Noble	11.2	38.1	59.0	25.9	134.3
Tuscarawas	6.3	.0	21.4	129.9	157.5
East-Central Unit	117.6	177.5	336.5	1,105.1	1,736.7

Table 82. continued

(In thousands of acres)

Counties	Productivity class(cuft/a/yr)				Allclasses
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)	
Ashtabula	.0	.0	.0	225.7	225.7
Columbiana	.0	15.5	22.1	107.1	144.7
Mahoning	18.1	16.4	3.8	20.2	58.5
Trumbull	23.1	10.9	29.4	75.8	139.2
Ashland,Richland	9.1	17.6	49.1	73.6	149.5
Erie,Huron	.0	.0	40.7	27.4	68.1
Lorain,Medina	6.7	8.5	23.5	78.3	117.1
Portage,Summit	11.4	8.9	4.5	167.7	192.5
Stark,Wayne	4.4	9.8	10.5	89.0	113.7
Geauga,Lake	.0	.0	26.0	127.5	153.5
Northeastern Unit	72.9	87.6	209.4	992.6	1,362.5
Butler,Hamilton	.0	3.8	9.0	74.5	87.4
Clark,Darke,Miami	.0	2.2	4.4	67.7	74.4
Clinton,Greene,Montgomery Preble,Warren	.0	6.5	32.8	135.6	174.9
Fairfield,Licking	26.9	7.9	35.0	136.6	206.4
Fayette,Franklin, Madison,Pickaway	.0	.0	34.5	31.8	66.3
Southwestern Unit	26.9	20.4	115.8	446.2	609.3
Knox	19.4	4.2	28.7	45.6	97.8
Allen,Auglaize,Mercer, Putnam,Van Wert	.0	.0	22.0	73.7	95.7
Champaign,Logan,Shelby, Union	8.4	9.0	5.9	128.0	151.3
Crawford,Hardin,Wyandot	6.1	.0	6.9	58.1	71.1
Delaware,Marion,Morrow	15.4	15.2	35.9	59.9	126.4
Hancock,Ottawa,Sandusky, Seneca,Wood	6.1	9.4	19.5	99.6	134.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	.0	4.3	45.0	71.3	120.6
Northwestern Unit	55.3	42.1	163.8	536.2	797.5
Total, all counties	383.3	577.6	1,487.0	5,119.5	7,567.4

Table 83. Net volume of sawtimber trees on timberland by county, geographic unit, and forest-type group, Ohio, 1991

(In millions of board feet)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Adams	.0	.0	17.3	8.2	734.7	.0	10.3	165.0	.0	935.5	11.7
Brown	.0	.0	.0	.0	469.2	.0	.0	8.2	.0	477.4	24.2
Clermont	.0	.0	.0	.0	146.1	.0	115.2	79.4	.0	340.7	20.3
Gallia	.0	.0	29.0	19.6	358.8	.0	11.8	21.1	.0	440.4	15.3
Highland	.0	.0	.0	.0	309.5	.0	6.5	36.9	.0	352.9	20.9
Jackson	13.5	.0	47.4	.0	372.5	.0	.0	36.0	21.9	491.4	14.3
Lawrence	.0	.0	37.0	.0	945.9	.0	.0	47.3	.0	1,030.2	13.4
Pike	.0	.0	.0	27.8	381.5	.0	7.7	199.7	.0	616.6	13.7
Ross	.0	.0	.0	.0	510.7	.0	8.2	142.9	.0	661.7	14.3
Scioto	.0	.0	4.9	14.9	1,205.1	.0	72.5	85.6	.0	1,383.0	15.0
South-Central Unit	13.5	.0	135.7	70.5	5,434.2	.0	232.1	822.0	21.9	6,729.8	5.2
Athens	6.3	.0	1.6	3.3	744.5	.0	27.0	120.4	.0	903.1	11.5
Meigs	.0	.0	20.0	22.1	598.8	.0	57.0	3.3	.0	701.2	12.5
Vinton	33.8	.0	11.6	16.1	823.7	.0	7.8	66.6	21.9	981.4	8.6
Hocking,Perry	75.9	.0	.0	27.0	975.5	.0	101.2	268.7	4.9	1,453.1	10.0
Morgan,Washington	22.6	.0	37.6	.0	1,242.4	.0	74.7	297.8	.0	1,675.0	12.1
Southeastern Unit	138.6	.0	70.7	68.4	4,384.8	.0	267.7	756.7	26.8	5,713.8	5.2
Belmont	.0	.0	.0	.0	374.7	.0	66.6	188.0	1.7	631.0	15.2
Carroll	.5	.0	.0	.0	369.8	.0	19.0	24.5	.0	413.9	22.2
Coshocton	59.2	.0	.0	.0	426.3	.0	13.4	160.9	.0	659.9	11.4
Guernsey	31.7	.0	.0	90.6	491.3	.0	6.4	11.7	16.8	648.5	18.8
Harrison	27.0	.0	.0	10.4	253.2	.0	4.8	63.3	.0	358.6	20.2
Holmes	.0	.0	.0	40.1	238.4	.0	43.7	126.9	.0	449.1	24.8
Jefferson	.0	.0	.0	.0	94.6	.0	88.0	231.0	.0	413.6	15.1
Monroe	.0	.0	25.6	112.3	1,014.8	.0	49.7	143.8	.0	1,346.1	12.7
Muskingum	.0	.0	.0	.0	456.5	.0	9.0	106.9	30.4	602.8	11.2
Noble	13.1	.0	.0	.0	340.4	.0	25.1	98.3	.0	477.0	19.3
Tuscarawas	.0	.0	.0	.0	361.1	.0	12.5	111.5	1.8	486.9	20.2
East-Central Unit	131.6	.0	25.6	253.4	4,421.1	.0	338.2	1,266.9	50.7	6,487.5	5.2

Table 83. continued

(In millions of board feet)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Ashtabula	4.3	.0	.0	.0	287.1	.0	16.5	256.3	.0	564.2	15.6
Columbiana	.0	.0	.0	.0	276.5	.0	.0	162.8	.9	440.2	18.5
Mahoning	17.3	.0	.0	.0	87.7	.0	55.0	14.1	.0	174.1	28.8
Trumbull	4.4	.0	.0	.0	310.4	.0	94.2	20.8	.0	429.7	22.5
Ashland,Richland	6.0	.0	.0	.0	244.3	.0	58.3	589.9	.0	898.4	17.3
Erie,Huron	.0	.0	.0	.0	65.2	.0	136.7	226.8	.0	428.7	29.2
Lorain,Medina	.0	.0	.0	.0	353.5	.0	100.5	171.3	.0	625.3	23.1
Portage,Summit	.0	.0	.0	.0	159.7	.0	144.4	222.4	.0	526.5	16.5
Stark,Wayne	2.5	.0	.0	.0	306.0	.0	27.1	167.5	5.9	509.0	23.7
Geauga,Lake	.0	.0	.0	.0	164.7	.0	2.8	555.6	.0	723.1	16.0
Northeastern Unit	34.5	.0	.0	.0	2,255.1	.0	635.4	2,387.7	6.7	5,319.3	6.6
Butler,Hamilton	.0	.0	.0	.0	24.3	.0	87.9	121.9	.0	234.1	21.9
Clark,Darke,Miami	.0	.0	.0	.0	106.2	.0	98.1	104.4	.0	308.6	20.2
Clinton,Greene,Montgomery Preble,Warren	.0	.0	.0	.0	122.1	.0	193.2	331.5	.0	646.8	16.8
Fairfield,Licking	12.4	2.7	.0	56.6	598.8	.0	158.1	163.3	.0	991.9	13.4
Fayette,Franklin, Madison,Pickaway	.0	.0	.0	.0	89.8	.0	118.4	.0	.0	208.2	33.0
Southwestern Unit	12.4	2.7	.0	56.6	941.2	.0	655.7	721.1	.0	2,389.6	8.4
Knox	63.8	.0	.0	.0	158.9	.0	4.2	263.6	.0	490.4	22.1
Allen,Auglaize,Mercer, Putnam,Van Wert	.0	.0	.0	.0	397.2	.0	92.5	109.2	.0	598.9	16.5
Champaign,Logan,Shelby, Union	.0	.0	.0	.0	157.2	.0	36.2	177.2	1.2	371.8	24.3
Crawford,Hardin,Wyandot	.0	.0	.0	.0	249.1	.0	112.7	334.0	.0	695.9	14.0
Delaware,Marion,Morrow	.0	.0	.0	.0	164.2	.0	123.4	152.2	.0	439.9	18.3
Hancock,Ottawa,Sandusky, Seneca,Wood	.0	.0	.0	.0	331.7	.0	69.9	106.8	9.2	517.7	13.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	26.1	.0	.0	.0	249.5	.0	60.6	197.8	.0	533.9	16.9
Northwestern Unit	89.9	.0	.0	.0	1,707.8	.0	499.5	1,340.8	10.4	3,648.6	6.6
Total, all counties	420.4	2.7	232.0	449.0	19,144.1	.0	2,628.6	7,295.3	116.6	30,288.7	2.4
SE	28.8	100.0	28.1	37.0	3.6	.0	11.5	6.5	36.1	2.4	

Table 84. Net volume of sawtimber trees on timberland by county, geographic unit, and stand-size class, Ohio, 1991

(In millions of board feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Adams	819.8	77.9	37.8	.0	935.5	11.7
Brown	385.1	43.4	48.9	.0	477.4	24.2
Clermont	276.8	24.2	39.7	.0	340.7	20.3
Gallia	295.7	84.4	60.3	.0	440.4	15.3
Highland	334.1	15.1	3.7	.0	352.9	20.9
Jackson	336.7	89.6	65.2	.0	491.4	14.3
Lawrence	842.6	46.2	141.4	.0	1,030.2	13.4
Pike	524.9	45.2	46.5	.0	616.6	13.7
Ross	597.0	47.3	17.5	.0	661.7	14.3
Scioto	1,216.2	83.0	83.8	.0	1,383.0	15.0
South-Central Unit	5,628.9	556.2	544.7	.0	6,729.8	5.2
Athens	779.1	78.8	45.2	.0	903.1	11.5
Meigs	618.6	49.7	32.9	.0	701.2	12.5
Vinton	799.6	143.6	38.2	.0	981.4	8.6
Hocking,Perry	1,186.6	220.5	46.1	.0	1,453.1	10.0
Morgan,Washington	1,297.9	227.1	150.0	.0	1,675.0	12.1
Southeastern Unit	4,681.8	719.6	312.4	.0	5,713.8	5.2
Belmont	559.8	48.4	22.9	.0	631.0	15.2
Carroll	374.0	37.4	2.4	.0	413.9	22.2
Coshocton	539.2	74.3	46.4	.0	659.9	11.4
Guernsey	475.7	79.3	93.5	.0	648.5	18.8
Harrison	277.9	46.8	33.9	.0	358.6	20.2
Holmes	416.4	30.6	2.2	.0	449.1	24.8
Jefferson	345.5	61.7	6.5	.0	413.6	15.1
Monroe	1,251.0	90.9	4.2	.0	1,346.1	12.7
Muskingum	372.2	126.6	104.0	.0	602.8	11.2
Noble	359.9	75.7	41.3	.0	477.0	19.3
Tuscarawas	405.5	45.9	35.5	.0	486.9	20.2
East-Central Unit	5,377.2	717.5	392.8	.0	6,487.5	5.2
Ashtabula	328.9	196.3	39.0	.0	564.2	15.6
Columbiana	347.1	72.3	20.8	.0	440.2	18.5
Mahoning	143.0	22.7	8.4	.0	174.1	28.8
Trumbull	360.5	52.6	16.6	.0	429.7	22.5
Ashland,Richland	791.8	100.0	6.7	.0	898.4	17.3
Erie,Huron	396.4	13.6	18.7	.0	428.7	29.2
Lorain,Medina	584.5	40.7	.0	.0	625.3	23.1
Portage,Summit	433.9	42.6	50.1	.0	526.5	16.5

Table 84. continued

(In millions of board feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Stark,Wayne	416.8	43.2	48.9	.0	509.0	23.7
Geauga,Lake	626.3	87.8	9.0	.0	723.1	16.0
Northeastern Unit	4,429.2	672.0	218.2	.0	5,319.3	6.6
Butler,Hamilton	191.8	36.3	5.9	.0	234.1	21.9
Clark,Darke,Miami	292.8	4.5	11.4	.0	308.6	20.2
Clinton,Greene,Montgomery Preble,Warren	610.0	10.7	26.1	.0	646.8	16.8
Fairfield,Licking	871.5	107.6	12.8	.0	991.9	13.4
Fayette,Franklin, Madison,Pickaway	205.1	.0	3.1	.0	208.2	33.0
Southwestern Unit	2,171.2	159.2	59.3	.0	2,389.6	8.4
Knox	410.8	75.4	4.2	.0	490.4	22.1
Allen,Auglaize,Mercer, Putnam,Van Wert	556.2	22.2	20.6	.0	598.9	16.5
Champaign,Logan,Shelby, Union	305.9	59.5	6.4	.0	371.8	24.3
Crawford,Hardin,Wyandot	684.4	11.5	.0	.0	695.9	14.0
Delaware,Marion,Morrow	365.1	65.0	9.8	.0	439.9	18.3
Hancock,Ottawa,Sandusky, Seneca,Wood	393.8	78.7	45.2	.0	517.7	13.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	425.3	88.5	20.2	.0	533.9	16.9
Northwestern Unit	3,141.5	400.7	106.3	.0	3,648.6	6.6
Total, all counties	25,429.7	3,225.2	1,633.7	.0	30,288.7	2.4
SE	3.2	6.3	8.5	.0	2.4	

Table 85. Net volume of growing-stock trees on timberland by county, geographic unit, and forest-type group, Ohio, 1991

(In millions of cubic feet)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Adams	.0	.0	11.2	3.7	229.4	.0	4.1	52.8	.0	301.3	8.4
Brown	.0	.0	.0	.0	139.2	.0	.0	4.7	.0	143.9	17.9
Clermont	.0	.0	.0	.0	50.7	.0	35.0	35.8	.0	121.4	16.3
Gallia	.0	.0	18.5	14.0	140.2	.0	5.3	14.1	.0	192.0	9.8
Highland	.0	.0	.0	.0	101.0	.0	5.0	11.4	.0	117.4	17.3
Jackson	4.3	.0	17.5	.0	136.4	.0	.1	12.0	10.9	181.3	10.3
Lawrence	.0	.0	13.5	.0	285.3	.0	.0	16.0	.0	314.8	10.5
Pike	.0	.0	.0	11.3	127.6	.0	3.0	54.5	.0	196.3	10.4
Ross	.0	.0	.0	.0	156.2	.0	3.3	46.5	.0	206.0	12.0
Scioto	.0	.0	2.7	5.7	362.3	.0	14.3	29.3	.0	414.4	9.9
South-Central Unit	4.3	.0	63.3	34.7	1,728.4	.0	70.0	277.1	10.9	2,188.7	3.7
Athens	2.3	.0	1.2	1.6	223.8	.0	10.8	39.2	.0	279.0	8.8
Meigs	.0	.0	7.2	10.8	192.7	.0	16.2	.8	.0	227.7	9.5
Vinton	12.0	.0	5.6	6.5	257.3	.0	2.5	23.9	11.1	318.8	6.6
Hocking, Perry	24.2	.0	.0	9.9	306.6	.0	35.6	89.7	5.6	471.5	7.5
Morgan, Washington	7.5	.0	15.3	.0	376.7	.0	23.1	106.1	.0	528.8	8.5
Southeastern Unit	46.0	.0	29.2	28.9	1,357.1	.0	88.2	259.7	16.7	1,825.8	3.8
Belmont	2.0	.0	.0	.0	121.0	.0	30.6	64.4	3.2	221.2	11.1
Carroll	.1	.0	.0	.0	114.0	.0	5.1	17.2	.0	136.4	17.2
Coshocton	16.7	.0	.0	.0	143.9	.0	15.0	62.1	.0	237.7	10.1
Guernsey	15.4	.0	.0	22.2	165.6	.0	1.7	6.5	4.9	216.3	13.2
Harrison	8.7	.0	.0	6.7	94.3	.0	8.4	26.7	.0	144.8	14.4
Holmes	.0	.0	.0	13.6	76.6	.0	21.0	35.9	.0	147.1	19.1
Jefferson	.5	.0	.0	.0	43.2	.0	32.9	88.7	.0	165.3	11.0
Monroe	.0	.0	13.7	26.5	298.8	.0	15.2	40.0	.0	394.2	8.2
Muskingum	.0	.0	.0	.0	144.8	.0	5.7	40.4	16.3	207.3	8.5
Noble	16.5	.0	.0	.0	99.3	.0	10.6	45.7	.0	172.2	14.0
Tuscarawas	2.6	.0	.0	1.7	129.4	.0	5.3	40.1	4.3	183.4	15.0
East-Central Unit	62.6	.0	13.7	70.7	1,431.1	.0	151.6	467.7	28.7	2,226.0	3.7

Table 85. continued

(In millions of cubic feet)

Counties	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Ashtabula	3.3	.0	.0	.0	133.9	.1	16.5	120.3	.0	274.1	11.7
Columbiana	.0	.0	.0	.0	89.4	.0	.0	68.6	2.7	160.7	15.7
Mahoning	5.3	.0	.0	.0	34.2	.0	25.3	7.0	.0	71.8	25.5
Trumbull	4.1	.0	.0	.0	124.0	.0	40.5	10.8	.0	179.4	18.7
Ashland, Richland	3.4	.0	.0	.0	88.0	.0	14.7	184.4	.0	290.5	15.4
Erie, Huron	.0	.0	.0	.0	16.3	.0	45.9	82.1	.0	144.3	26.2
Lorain, Medina	.0	.0	.0	.0	117.5	.0	35.9	54.0	.0	207.4	21.1
Portage, Summit	.0	.0	.0	.0	64.4	.0	45.0	85.6	2.7	197.6	12.4
Stark, Wayne	5.3	.0	.0	.0	81.7	.0	20.2	57.6	5.3	170.2	16.2
Geauga, Lake	.0	.0	.0	.0	59.2	.0	6.8	183.9	.0	250.0	13.2
Northeastern Unit	21.3	.0	.0	.0	808.5	.1	250.9	854.5	10.7	1,946.0	5.4
Butler, Hamilton	.0	.0	.0	.0	13.3	.0	24.8	40.3	.0	78.5	19.7
Clark, Darke, Miami	.0	.0	.0	.0	31.6	.0	32.9	28.2	.0	92.7	17.1
Clinton, Greene, Montgomery Preble, Warren	.0	.0	.0	.0	42.0	.0	54.7	97.8	.0	194.5	15.5
Fairfield, Licking	6.1	.7	.0	14.1	171.0	.0	46.8	54.1	.2	293.1	10.3
Fayette, Franklin, Madison, Pickaway	.0	.0	.0	.0	28.9	.0	35.7	.0	.0	64.6	29.7
Southwestern Unit	6.1	.7	.0	14.1	286.8	.0	195.0	220.4	.2	723.4	7.2
Knox	25.4	.0	.0	.0	50.7	.0	7.3	78.0	.0	161.4	15.1
Allen, Auglaize, Mercer, Putnam, Van Wert	.0	.0	.0	.0	116.2	.0	32.0	27.0	.0	175.2	14.0
Champaign, Logan, Shelby, Union	.0	.0	.0	.0	55.4	.0	20.5	62.1	2.5	140.4	17.0
Crawford, Hardin, Wyandot	.0	.0	.0	.0	71.8	.0	32.3	77.9	.0	182.0	13.6
Delaware, Marion, Morrow	.0	.0	.0	.0	57.0	.0	40.9	60.4	.0	158.3	14.5
Hancock, Ottawa, Sandusky, Seneca, Wood	.0	.0	.0	.0	104.6	.0	22.1	44.2	3.5	174.4	12.2
Defiance, Fulton, Henry, Lucas, Paulding, Williams	8.9	.0	.0	.0	95.2	.0	24.0	66.6	.0	194.7	13.9
Northwestern Unit	34.3	.0	.0	.0	550.8	.0	179.0	416.2	6.0	1,186.3	5.4
Total, all counties	174.6	.7	106.2	148.4	6,162.6	.1	934.8	2,495.6	73.2	10,096.2	1.9
SE	25.2	100.0	25.9	29.7	3.1	100.0	10.2	5.7	29.5	1.9	

Table 86. Net volume of growing-stock trees on timberland by county, geographic unit, and stand-size class, Ohio, 1991

(In millions of cubic feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Adams	234.2	52.2	14.8	.0	301.3	8.4
Brown	98.7	23.2	22.0	.0	143.9	17.9
Clermont	82.9	16.4	22.1	.0	121.4	16.3
Gallia	98.5	54.3	39.3	.0	192.0	9.8
Highland	103.2	11.2	3.0	.0	117.4	17.3
Jackson	97.7	55.4	28.1	.0	181.3	10.3
Lawrence	241.7	25.7	47.4	.0	314.8	10.5
Pike	152.1	27.3	17.0	.0	196.3	10.4
Ross	168.7	29.8	7.5	.0	206.0	12.0
Scioto	326.8	49.4	38.2	.0	414.4	9.9
South-Central Unit	1,604.6	344.8	239.4	.0	2,188.7	3.7
Athens	221.1	40.2	17.8	.0	279.0	8.8
Meigs	178.4	29.9	19.4	.0	227.7	9.5
Vinton	236.2	67.9	14.6	.0	318.8	6.6
Hocking,Perry	334.4	112.4	24.7	.0	471.5	7.5
Morgan,Washington	348.9	127.6	52.3	.0	528.8	8.5
Southeastern Unit	1,318.9	378.1	128.8	.0	1,825.8	3.8
Belmont	171.5	30.3	19.5	.0	221.2	11.1
Carroll	106.8	22.7	7.0	.0	136.4	17.2
Coshocton	174.2	43.4	20.2	.0	237.7	10.1
Guernsey	133.1	52.1	31.0	.0	216.3	13.2
Harrison	85.9	40.3	18.6	.0	144.8	14.4
Holmes	118.2	24.3	4.6	.0	147.1	19.1
Jefferson	116.0	41.9	7.4	.0	165.3	11.0
Monroe	344.9	47.7	1.6	.0	394.2	8.2
Muskingum	106.8	63.1	37.4	.0	207.3	8.5
Noble	97.5	51.5	23.3	.0	172.2	14.0
Tuscarawas	126.7	31.2	25.5	.0	183.4	15.0
East-Central Unit	1,581.6	448.3	196.1	.0	2,226.0	3.7
Ashtabula	110.5	135.0	28.6	.0	274.1	11.7
Columbiana	108.1	37.2	15.4	.0	160.7	15.7
Mahoning	50.1	12.3	9.4	.0	71.8	25.5
Trumbull	124.9	43.2	11.4	.0	179.4	18.7
Ashland,Richland	233.5	53.4	3.6	.0	290.5	15.4
Erie,Huron	126.0	9.9	8.5	.0	144.3	26.2
Lorain,Medina	179.4	27.5	.6	.0	207.4	21.1
Portage,Summit	128.6	42.1	26.9	.0	197.6	12.4

Table 86. continued

(In millions of cubic feet)

Counties	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Stark,Wayne	111.5	39.4	19.4	.0	170.2	16.2
Geauga,Lake	185.9	55.6	8.5	.0	250.0	13.2
Northeastern Unit	1,358.2	455.5	132.2	.0	1,946.0	5.4
Butler,Hamilton	58.1	18.1	2.2	.0	78.5	19.7
Clark,Darke,Miami	77.3	7.2	8.1	.0	92.7	17.1
Clinton,Greene,Montgomery Preble,Warren	174.6	6.2	13.7	.0	194.5	15.5
Fairfield,Licking	234.1	52.9	6.0	.0	293.1	10.3
Fayette,Franklin, Madison,Pickaway	62.4	.0	2.2	.0	64.6	29.7
Southwestern Unit	606.5	84.5	32.3	.0	723.4	7.2
Knox	120.7	33.4	7.3	.0	161.4	15.1
Allen,Auglaize,Mercer, Putnam,Van Wert	154.8	14.7	5.6	.0	175.2	14.0
Champaign,Logan,Shelby, Union	89.8	44.5	6.0	.0	140.4	17.0
Crawford,Hardin,Wyandot	173.8	8.2	.0	.0	182.0	13.6
Delaware,Marion,Morrow	112.2	40.6	5.5	.0	158.3	14.5
Hancock,Ottawa,Sandusky, Seneca,Wood	117.3	42.3	14.8	.0	174.4	12.2
Defiance,Fulton,Henry, Lucas,Paulding,Williams	127.4	58.0	9.3	.0	194.7	13.9
Northwestern Unit	896.1	241.7	48.6	.0	1,186.3	5.4
Total, all counties	7,366.0	1,952.8	777.4	.0	10,096.2	1.9
SE	3.0	5.7	6.8	.0	1.9	

Table 87. Net volume of growing-stock and sawtimber trees on timberland by county, geographic unit, and species group, Ohio, 1991

(In millions of cubic feet/board feet)

Counties	Growing stock					Sawtimber				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total
Adams	.9	15.5	105.2	179.7	301.3	2.9	17.2	318.4	597.0	935.5
Brown	.0	1.0	59.6	83.2	143.9	.0	.8	197.3	279.3	477.4
Clermont	.0	2.2	77.9	41.3	121.4	.0	.0	206.8	133.9	340.7
Gallia	26.7	.3	41.0	124.1	192.0	48.8	.9	80.0	310.7	440.4
Highland	.0	.4	58.0	59.0	117.4	.0	.0	176.4	176.5	352.9
Jackson	26.7	4.0	67.3	83.2	181.3	68.7	13.7	155.3	253.6	491.4
Lawrence	10.0	.0	102.9	201.9	314.8	33.2	.0	323.3	673.7	1,030.2
Pike	5.9	.0	57.7	132.7	196.3	16.2	.0	174.3	426.2	616.6
Ross	4.1	.0	60.8	141.0	206.0	13.0	.0	170.0	478.8	661.7
Scioto	6.7	.0	130.5	277.1	414.4	19.1	.0	419.4	944.4	1,383.0
South-Central Unit	81.1	23.4	761.0	1,323.3	2,188.7	202.0	32.6	2,221.3	4,274.0	6,729.8
Athens	4.2	.0	114.8	160.0	279.0	10.7	.0	352.5	539.9	903.1
Meigs	11.9	.0	91.6	124.2	227.7	32.2	.0	262.9	406.1	701.2
Vinton	18.8	1.2	111.4	187.4	318.8	51.8	1.7	301.3	626.6	981.4
Hocking,Perry	30.1	1.6	249.3	190.5	471.5	105.2	6.3	707.6	634.0	1,453.1
Morgan,Washington	21.0	.0	207.2	300.6	528.8	56.7	.0	527.3	1,091.0	1,675.0
Southeastern Unit	85.9	2.9	774.3	962.7	1,825.8	256.7	8.1	2,151.5	3,297.6	5,713.8
Belmont	1.4	.1	121.8	98.0	221.2	.0	.0	318.9	312.1	631.0
Carroll	.0	.0	82.7	53.7	136.4	.0	.0	217.9	196.0	413.9
Coshocton	10.4	.0	142.6	84.7	237.7	35.3	.0	370.7	253.8	659.9
Guernsey	23.9	.0	85.6	106.8	216.3	75.5	.0	213.1	359.9	648.5
Harrison	9.5	.0	85.1	50.2	144.8	28.1	.0	178.3	152.2	358.6
Holmes	6.7	.0	66.7	73.7	147.1	25.4	.0	200.4	223.4	449.1
Jefferson	1.2	.0	105.3	58.7	165.3	2.8	.0	259.4	151.4	413.6
Monroe	28.6	.0	224.0	141.5	394.2	78.1	.0	766.7	501.3	1,346.1
Muskingum	.0	.0	123.8	83.5	207.3	.0	.0	336.2	266.6	602.8
Noble	14.9	.0	106.9	50.5	172.2	13.1	.0	303.6	160.3	477.0
Tuscarawas	3.3	.0	105.1	75.0	183.4	.3	.0	283.9	202.7	486.9
East-Central Unit	99.9	.1	1,249.7	876.3	2,226.0	258.7	.0	3,449.0	2,779.7	6,487.5

Table 87. continued

(In millions of cubic feet/board feet)

Counties	Growing stock					Sawtimber				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total
Ashtabula	2.7	3.4	166.6	101.4	274.1	4.8	9.8	288.2	261.3	564.2
Columbiana	1.5	2.1	78.7	78.3	160.7	1.2	4.9	167.3	266.8	440.2
Mahoning	7.8	.0	36.0	28.1	71.8	28.7	.0	64.0	81.4	174.1
Trumbull	4.2	.0	94.2	81.0	179.4	4.2	.0	199.9	225.7	429.7
Ashland,Richland	5.5	.0	123.7	161.3	290.5	6.4	.0	376.9	515.1	898.4
Erie,Huron	.0	.0	71.6	72.7	144.3	.0	.0	180.0	248.7	428.7
Lorain,Medina	2.1	.0	133.4	71.9	207.4	6.7	.0	382.5	236.1	625.3
Portage,Summit	.0	.0	140.7	56.9	197.6	.0	.0	369.8	156.8	526.5
Stark,Wayne	2.9	2.1	104.0	61.1	170.2	.9	5.2	257.8	245.1	509.0
Geauga,Lake	.9	1.8	127.3	120.0	250.0	1.4	2.2	345.5	374.0	723.1
Northeastern Unit	27.6	9.4	1,076.3	832.6	1,946.0	54.3	22.0	2,631.9	2,611.1	5,319.3
Butler,Hamilton	.0	.1	48.0	30.4	78.5	.0	.0	144.4	89.7	234.1
Clark,Darke,Miami	.0	.0	34.4	58.4	92.7	.0	.0	105.8	202.8	308.6
Clinton,Greene,Montgomery Preble,Warren	.6	.5	106.1	87.4	194.5	2.4	.0	350.8	293.6	646.8
Fairfield,Licking	15.6	1.7	149.5	126.2	293.1	51.2	4.4	478.5	457.9	991.9
Fayette,Franklin, Madison,Pickaway	.0	.0	32.1	32.4	64.6	.0	.0	75.1	133.2	208.2
Southwestern Unit	16.2	2.3	370.0	334.9	723.4	53.6	4.4	1,154.6	1,177.1	2,389.6
Knox	18.3	.0	75.9	67.2	161.4	50.7	.0	210.8	228.9	490.4
Allen,Auglaize,Mercer, Putnam,Van Wert	.0	.0	61.1	114.1	175.2	.0	.0	197.8	401.2	598.9
Champaign,Logan,Shelby, Union	1.9	.4	64.2	73.9	140.4	1.1	.0	148.3	222.5	371.8
Crawford,Hardin,Wyandot	.0	.0	67.8	114.2	182.0	.0	.0	238.0	457.9	695.9
Delaware,Marion,Morrow	1.3	.0	84.2	72.8	158.3	3.6	.0	240.0	196.4	439.9
Hancock,Ottawa,Sandusky, Seneca,Wood	.0	.0	90.0	84.4	174.4	.0	.0	237.5	280.2	517.7
Defiance,Fulton,Henry, Lucas,Paulding,Williams	8.9	.0	79.8	106.1	194.7	25.9	.0	204.4	303.6	533.9
Northwestern Unit	30.2	.4	523.0	632.7	1,186.3	81.3	.0	1,476.6	2,090.7	3,648.6
Total, all counties	340.9	38.5	4,754.2	4,962.6	10,096.2	906.5	67.1	13,084.9	16,230.2	30,288.7

Table 88. Average annual net growth of growing-stock and sawtimber volume on timberland by county and species group, Ohio, 1991

(In thousands of cubic feet/board feet)

Counties	Growing stock			Sawtimber			
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups	SE
Adams	635	5,266	5,901	464	23,603	24,067	16.3
Brown	63	3,212	3,276	58	10,819	10,877	28.5
Clermont	100	3,181	3,281	0	10,848	10,848	21.5
Gallia	394	4,811	5,206	45	11,501	11,546	18.9
Highland	31	3,061	3,092	0	10,567	10,567	18.9
Jackson	977	3,595	4,572	3,585	8,289	11,873	19.9
Lawrence	-310	7,766	7,456	-372	31,220	30,848	21.5
Pike	102	4,560	4,662	545	15,813	16,358	21.7
Ross	-107	3,801	3,694	-326	13,506	13,179	20.2
Scioto	62	9,290	9,352	210	36,617	36,827	11.3
South-Central Unit	1,948	48,544	50,492	4,209	172,782	176,991	6.3
Athens	191	6,860	7,051	700	27,221	27,921	13.0
Meigs	177	6,082	6,259	928	24,787	25,715	12.6
Vinton	1,043	8,605	9,647	3,337	31,892	35,229	9.8
Hocking,Perry	738	12,670	13,408	4,642	45,564	50,206	12.4
Morgan,Washington	678	15,772	16,450	2,857	47,122	49,979	11.0
Southeastern Unit	2,826	49,988	52,814	12,464	176,586	189,050	5.4
Belmont	82	6,349	6,431	0	19,750	19,750	15.1
Carroll	0	3,772	3,772	0	12,262	12,262	26.7
Coshocton	315	6,656	6,971	1,525	22,800	24,325	11.6
Guernsey	1,164	4,913	6,077	3,824	15,875	19,699	22.5
Harrison	415	3,879	4,293	1,825	9,493	11,319	27.0
Holmes	201	3,296	3,496	961	10,760	11,721	34.0
Jefferson	74	3,295	3,369	218	12,198	12,416	27.8
Monroe	703	10,212	10,915	4,191	41,822	46,013	17.1
Muskingum	0	7,043	7,043	0	23,338	23,338	14.4
Noble	826	5,377	6,203	1,009	17,763	18,772	17.7
Tuscarawas	252	4,861	5,113	25	12,820	12,845	34.7
East-Central Unit	4,033	59,652	63,685	13,578	198,882	212,460	6.5

Table 88. continued

(In thousands of cubic feet/board feet)

Counties	Growing stock			Sawtimber			
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups	SE
Ashtabula	241	9,835	10,077	892	21,722	22,614	20.1
Columbiana	128	4,834	4,962	93	14,667	14,759	21.1
Mahoning	101	2,147	2,248	126	5,479	5,605	28.6
Trumbull	167	5,783	5,950	270	15,593	15,864	21.2
Ashland,Richland	104	11,148	11,252	479	38,946	39,425	26.3
Erie,Huron	0	4,604	4,604	0	14,855	14,855	29.8
Lorain,Medina	111	7,979	8,090	558	26,925	27,483	25.0
Portage,Summit	0	7,739	7,739	0	20,068	20,068	19.7
Stark,Wayne	209	6,067	6,276	466	14,412	14,878	26.8
Geauga,Lake	133	7,538	7,671	30	22,598	22,628	19.2
Northeastern Unit	1,194	67,675	68,869	2,914	195,264	198,178	8.3
Butler,Hamilton	5	1,902	1,907	0	6,085	6,085	36.7
Clark,Darke,Miami	0	1,883	1,883	0	4,704	4,704	41.9
Clinton,Greene,Montgomery Preble,Warren	70	5,906	5,976	198	21,428	21,626	23.0
Fairfield,Licking	-111	7,417	7,306	-701	29,661	28,959	13.7
Fayette,Franklin, Madison,Pickaway	0	1,725	1,725	0	6,408	6,408	45.4
Southwestern Unit	-36	18,833	18,797	-503	68,287	67,784	11.2
Knox	780	4,470	5,250	2,905	15,034	17,939	21.8
Allen,Auglaize,Mercer, Putnam,Van Wert	0	5,148	5,148	0	21,693	21,693	18.5
Champaign,Logan,Shelby, Union	191	4,770	4,961	90	10,055	10,145	35.6
Crawford,Hardin,Wyandot	0	5,269	5,269	0	19,892	19,892	25.6
Delaware,Marion,Morrow	49	5,427	5,477	185	13,721	13,906	27.2
Hancock,Ottawa,Sandusky, Seneca,Wood	0	6,467	6,467	0	19,578	19,578	31.0
Defiance,Fulton,Henry, Lucas,Paulding,Williams	277	5,650	5,927	929	16,995	17,924	29.6
Northwestern Unit	1,297	37,202	38,499	4,108	116,968	121,077	10.1
Total, all counties	11,261	281,894	293,155	36,770	928,770	965,540	3.1
SE	18.0	2.6	2.6	20.6	3.2	3.1	

Table 89. Average annual removals of growing-stock and sawtimber volume on timberland by county and species group, Ohio, 1991

(In thousands of cubic feet/board feet)

Counties	Growing stock			Sawtimber			
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups	SE
Adams	-730	-3,812	-4,543	-3,333	-17,989	-21,323	26.4
Brown	-9	-1,397	-1,406	0	-6,895	-6,895	43.5
Clermont	0	-661	-661	0	-2,890	-2,890	62.9
Gallia	-348	-1,562	-1,909	-1,407	-5,223	-6,629	53.9
Highland	-32	-1,253	-1,284	0	-4,891	-4,891	34.0
Jackson	-231	-2,644	-2,874	-304	-11,029	-11,333	41.4
Lawrence	0	-2,227	-2,227	0	-7,305	-7,305	35.3
Pike	0	-5,346	-5,346	0	-23,375	-23,375	26.6
Ross	0	-2,945	-2,945	0	-12,321	-12,321	36.2
Scioto	-58	-5,493	-5,551	-185	-21,672	-21,856	27.4
South-Central Unit	-1,408	-27,339	-28,747	-5,229	-113,590	-118,819	11.4
Athens	0	-2,548	-2,548	0	-11,940	-11,940	34.9
Meigs	0	-2,373	-2,373	0	-11,126	-11,126	33.1
Vinton	0	-3,381	-3,381	0	-11,245	-11,245	33.6
Hocking,Perry	-110	-4,325	-4,435	-231	-18,296	-18,527	30.9
Morgan,Washington	0	-6,070	-6,070	0	-32,529	-32,529	23.0
Southeastern Unit	-110	-18,697	-18,807	-231	-85,137	-85,368	13.6
Belmont	0	-3,163	-3,163	0	-11,050	-11,050	35.0
Carroll	-875	-2,974	-3,849	-3,403	-9,665	-13,068	36.4
Coshocton	0	-3,402	-3,402	0	-12,826	-12,826	35.4
Guernsey	-16	-2,078	-2,094	0	-10,101	-10,101	34.9
Harrison	0	-2,519	-2,519	0	-13,131	-13,131	34.2
Holmes	0	-1,513	-1,513	0	-6,426	-6,426	41.9
Jefferson	0	-2,141	-2,141	0	-10,851	-10,851	28.6
Monroe	0	-719	-719	0	-3,861	-3,861	63.4
Muskingum	0	-3,160	-3,160	0	-14,621	-14,621	29.8
Noble	-365	-1,048	-1,413	0	-4,806	-4,806	61.1
Tuscarawas	0	-4,202	-4,202	0	-18,756	-18,756	41.8
East-Central Unit	-1,257	-26,921	-28,177	-3,403	-116,095	-119,498	11.9

Table 89. continued

(In thousands of cubic feet/board feet)

Counties	Growing stock			Sawtimber			
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups	SE
Ashtabula	0	-4,782	-4,782	0	-14,702	-14,702	34.5
Columbiana	0	-1,647	-1,647	0	-6,120	-6,120	53.7
Mahoning	0	-3,217	-3,217	0	-15,194	-15,194	39.1
Trumbull	0	-4,570	-4,570	0	-13,685	-13,685	46.6
Ashland,Richland	0	-1,318	-1,318	0	-4,196	-4,196	54.4
Erie,Huron	0	-1,231	-1,231	0	-4,760	-4,760	51.9
Lorain,Medina	0	-2,337	-2,337	0	-8,986	-8,986	56.3
Portage,Summit	-22	-5,663	-5,685	0	-25,143	-25,143	43.6
Stark,Wayne	-151	-4,190	-4,342	-981	-16,364	-17,345	31.5
Geauga,Lake	0	-1,274	-1,274	0	-3,621	-3,621	47.4
Northeastern Unit	-173	-30,230	-30,403	-981	-112,772	-113,753	15.3
Butler,Hamilton	0	-988	-988	0	-4,193	-4,193	56.5
Clark,Darke,Miami	0	-1,835	-1,835	0	-7,143	-7,143	47.2
Clinton,Greene,Montgomery Preble,Warren	0	-3,566	-3,566	0	-17,497	-17,497	40.6
Fairfield,Licking	-21	-1,720	-1,741	0	-6,794	-6,794	28.8
Fayette,Franklin, Madison,Pickaway	-35	-1,673	-1,708	0	-4,400	-4,400	61.8
Southwestern Unit	-56	-9,781	-9,837	0	-40,027	-40,027	22.2
Knox	0	-2,042	-2,042	0	-11,236	-11,236	42.8
Allen,Auglaize,Mercer, Putnam,Van Wert	0	-1,414	-1,414	0	-9,007	-9,007	64.9
Champaign,Logan,Shelby, Union	0	-1,314	-1,314	0	-5,777	-5,777	37.4
Crawford,Hardin,Wyandot	0	-784	-784	0	-2,607	-2,607	87.6
Delaware,Marion,Morrow	0	-1,339	-1,339	0	-5,158	-5,158	52.5
Hancock,Ottawa,Sandusky, Seneca,Wood	0	-1,122	-1,122	0	-6,715	-6,715	36.4
Defiance,Fulton,Henry, Lucas,Paulding,Williams	0	-1,750	-1,750	0	-7,594	-7,594	36.8
Northwestern Unit	0	-9,766	-9,766	0	-48,095	-48,095	19.5
Total, all counties	-3,004	-122,733	-125,737	-9,844	-515,716	-525,560	6.0
SE	40.3	5.6	5.5	49.5	6.0	6.0	

Table 90. Biomass of growing stock on timberland, by county and component, dry weight basis, Ohio, 1991

(In thousands of dry tons)

Counties	Growing stock			Total growing stock	SE
	Poletimber	Sawlog	Upper stem		
Adams	2,831	5,413	1,200	9,443	8.8
Brown	1,297	3,144	652	5,093	16.9
Clermont	1,433	1,938	438	3,809	15.2
Gallia	2,451	2,436	560	5,447	10.0
Highland	1,063	1,960	431	3,454	14.6
Jackson	1,807	2,887	615	5,310	10.8
Lawrence	2,377	5,599	1,212	9,188	10.5
Pike	1,777	3,519	786	6,082	10.1
Ross	1,801	4,295	921	7,017	13.1
Scioto	3,065	7,847	1,709	12,622	10.9
South-Central Unit	19,903	39,039	8,525	67,466	3.8
Athens	2,335	4,887	1,078	8,299	8.7
Meigs	2,125	3,691	853	6,669	9.6
Vinton	2,645	5,123	1,136	8,905	6.9
Hocking,Perry	3,930	6,852	1,466	12,249	6.9
Morgan,Washington	4,499	8,887	1,862	15,248	8.5
Southeastern Unit	15,535	29,440	6,395	51,370	3.8
Belmont	2,208	3,592	789	6,589	11.7
Carroll	1,217	2,377	501	4,095	17.2
Coshocton	2,131	3,455	775	6,362	10.3
Guernsey	1,893	3,523	768	6,184	12.4
Harrison	1,662	1,970	448	4,079	13.4
Holmes	1,285	2,431	521	4,237	19.0
Jefferson	1,980	2,359	575	4,913	10.1
Monroe	2,590	6,285	1,355	10,230	9.1
Muskingum	2,214	3,299	741	6,254	9.1
Noble	1,829	2,413	528	4,771	13.6
Tuscarawas	1,916	2,611	587	5,113	14.1
East-Central Unit	20,926	34,313	7,588	62,827	3.7

Table 90. continued

(In thousands of dry tons)

Counties	Growing stock			Total growing stock	SE
	Poletimber	Sawlog	Upper stem		
Ashtabula	3,849	3,170	768	7,787	12.0
Columbiana	1,711	2,951	661	5,323	15.7
Mahoning	850	1,175	263	2,288	24.2
Trumbull	2,010	2,943	655	5,609	18.6
Ashland,Richland	2,249	4,880	1,054	8,182	14.9
Erie,Huron	1,245	2,539	539	4,323	27.2
Lorain,Medina	1,575	3,129	687	5,392	20.3
Portage,Summit	2,237	3,194	707	6,139	12.1
Stark,Wayne	1,502	3,108	633	5,242	20.2
Geauga,Lake	2,492	3,829	864	7,185	13.0
Northeastern Unit	19,721	30,919	6,830	57,469	5.4
Butler,Hamilton	778	1,478	323	2,579	19.5
Clark,Darke,Miami	653	2,083	419	3,155	21.3
Clinton,Greene,Montgomery Preble,Warren	1,506	3,741	799	6,047	15.5
Fairfield,Licking	2,172	5,665	1,178	9,015	11.2
Fayette,Franklin, Madison,Pickaway	553	1,615	331	2,499	32.1
Southwestern Unit	5,662	14,583	3,051	23,296	7.7
Knox	1,364	2,721	559	4,644	15.4
Allen,Auglaize,Mercer, Putnam,Van Wert	1,095	3,549	765	5,409	13.4
Champaign,Logan,Shelby, Union	1,664	2,315	477	4,456	18.2
Crawford,Hardin,Wyandot	967	3,971	805	5,743	15.6
Delaware,Marion,Morrow	1,630	2,521	545	4,696	13.7
Hancock,Ottawa,Sandusky, Seneca,Wood	1,617	2,975	656	5,248	11.7
Defiance,Fulton,Henry, Lucas,Paulding,Williams	2,078	3,201	683	5,962	13.9
Northwestern Unit	10,415	21,252	4,490	36,157	5.5
Total, all counties	92,162	169,547	36,878	298,586	1.9
SE	2.0	2.4	2.2	1.9	

Table 91. Biomass of all timber on timberland, by county, class of timber, and component, Ohio, 1991

(In thousands of dry tons)

Counties	Growing stock trees					Total timber	SE
	Growing stock	Branches	Foilage	Stump and roots	Cull trees		
Adams	9,443	1,095	333	2,717	748	14,337	8.7
Brown	5,093	561	148	1,425	665	7,891	16.0
Clermont	3,809	439	126	1,101	720	6,197	14.7
Gallia	5,447	666	226	1,613	386	8,340	9.3
Highland	3,454	393	108	992	436	5,383	13.8
Jackson	5,310	646	221	1,558	641	8,376	10.0
Lawrence	9,188	1,039	290	2,614	437	13,568	9.9
Pike	6,082	696	198	1,747	558	9,281	9.7
Ross	7,017	786	214	1,987	595	10,599	12.3
Scioto	12,622	1,419	387	3,586	784	18,798	10.0
South-Central Unit	67,466	7,741	2,252	19,340	5,971	102,771	3.6
Athens	8,299	938	258	2,369	487	12,352	8.1
Meigs	6,669	775	231	1,929	585	10,189	9.4
Vinton	8,905	1,034	308	2,571	403	13,221	6.6
Hocking,Perry	12,249	1,427	428	3,540	1,053	18,697	6.4
Morgan,Washington	15,248	1,724	486	4,329	1,532	23,319	8.0
Southeastern Unit	51,370	5,899	1,710	14,738	4,062	77,778	3.5
Belmont	6,589	751	208	1,893	487	9,929	11.2
Carroll	4,095	457	122	1,160	343	6,177	16.6
Coshocton	6,362	738	216	1,839	587	9,741	9.8
Guernsey	6,184	727	227	1,789	682	9,608	12.5
Harrison	4,079	481	146	1,192	462	6,360	13.3
Holmes	4,237	485	139	1,214	533	6,608	17.6
Jefferson	4,913	572	163	1,434	707	7,789	8.7
Monroe	10,230	1,168	343	2,911	730	15,382	8.1
Muskingum	6,254	712	195	1,797	939	9,897	8.2
Noble	4,771	558	175	1,377	256	7,137	13.1
Tuscarawas	5,113	590	169	1,480	349	7,701	13.8
East-Central Unit	62,827	7,239	2,102	18,087	6,073	96,329	3.5

Table 91. continued

(In thousands of dry tons)

Counties	Growing stock trees					Total timber	SE
	Growing stock	Branches	Foilage	Stump and roots	Cull trees		
Ashtabula	7,787	925	275	2,300	878	12,166	11.8
Columbiana	5,323	608	172	1,526	556	8,186	14.4
Mahoning	2,288	271	85	666	106	3,416	23.5
Trumbull	5,609	645	183	1,618	372	8,426	18.3
Ashland,Richland	8,182	921	253	2,326	721	12,404	14.3
Erie,Huron	4,323	481	127	1,221	624	6,776	24.8
Lorain,Medina	5,392	606	165	1,533	406	8,102	20.1
Portage,Summit	6,139	695	189	1,754	1,450	10,227	14.7
Stark,Wayne	5,242	584	161	1,473	528	7,988	18.4
Geauga,Lake	7,185	821	229	2,066	467	10,768	13.0
Northeastern Unit	57,469	6,557	1,839	16,483	6,110	88,459	5.2
Butler,Hamilton	2,579	288	77	731	624	4,300	18.8
Clark,Darke,Miami	3,155	341	86	872	664	5,119	19.9
Clinton,Greene,Montgomery Preble,Warren	6,047	670	178	1,701	1,121	9,717	14.0
Fairfield,Licking	9,015	1,022	295	2,553	1,446	14,332	11.5
Fayette,Franklin, Madison,Pickaway	2,499	271	69	693	475	4,008	29.6
Southwestern Unit	23,296	2,593	706	6,550	4,331	37,477	7.4
Knox	4,644	539	165	1,333	409	7,091	14.2
Allen,Auglaize,Mercer, Putnam,Van Wert	5,409	591	152	1,507	401	8,060	12.8
Champaign,Logan,Shelby, Union	4,456	503	139	1,268	808	7,175	16.8
Crawford,Hardin,Wyandot	5,743	619	156	1,585	258	8,361	15.3
Delaware,Marion,Morrow	4,696	533	146	1,344	1,208	7,927	14.8
Hancock,Ottawa,Sandusky, Seneca,Wood	5,248	588	157	1,489	1,297	8,780	12.4
Defiance,Fulton,Henry, Lucas,Paulding,Williams	5,962	684	197	1,711	501	9,055	13.0
Northwestern Unit	36,157	4,057	1,113	10,238	4,883	56,449	5.3
Total, all counties	298,586	34,085	9,723	85,437	31,430	459,261	1.8
SE	1.9	1.8	1.8	1.9	5.2	1.8	

Table 92. Biomass of all trees and shrubs on timberland, by county and class of material, Ohio, 1991

(In thousands of dry tons)

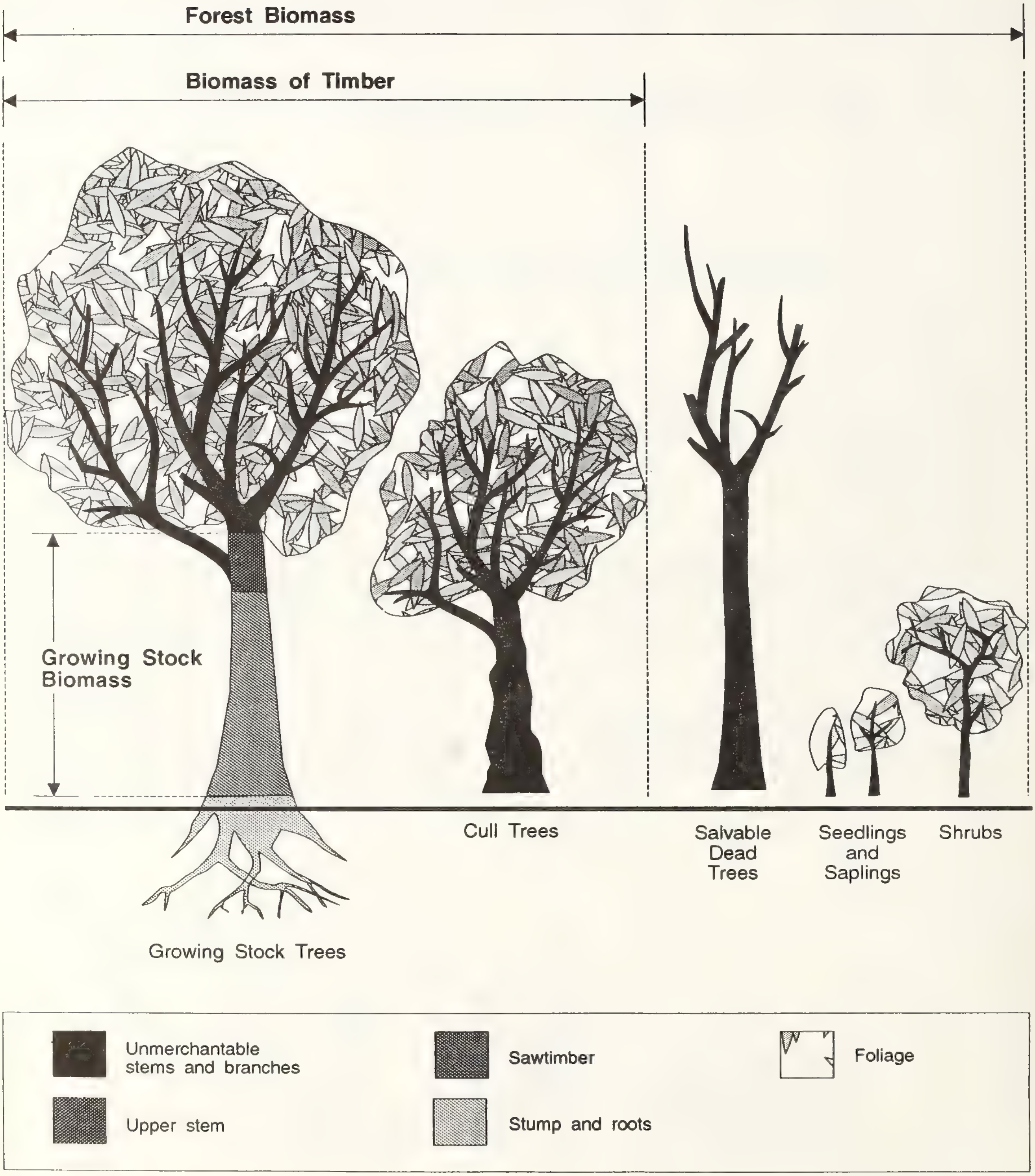
Counties	Timber	Non-timber				Total trees and shrubs	SE
		Salvable dead trees	Saplings	Seedlings	Shrubs		
Adams	14,337	121	1,415	330	140	16,343	7.8
Brown	7,891	77	598	89	33	8,688	15.2
Clermont	6,197	73	577	116	43	7,006	13.7
Gallia	8,340	127	1,074	209	74	9,825	8.0
Highland	5,383	78	444	89	23	6,017	13.1
Jackson	8,376	115	1,042	174	141	9,850	9.0
Lawrence	13,568	169	1,459	242	143	15,581	8.3
Pike	9,281	134	1,144	226	81	10,867	7.6
Ross	10,599	110	866	169	65	11,810	11.9
Scioto	18,798	92	1,498	365	165	20,918	8.5
South-Central Unit	102,771	1,096	10,117	2,012	907	116,904	3.2
Athens	12,352	320	1,267	173	147	14,259	7.5
Meigs	10,189	125	1,008	214	152	11,689	8.8
Vinton	13,221	57	1,345	251	68	14,943	5.6
Hocking,Perry	18,697	133	2,155	318	184	21,487	5.7
Morgan,Washington	23,319	296	2,317	464	286	26,683	7.3
Southeastern Unit	77,778	931	8,093	1,420	837	89,060	3.2
Belmont	9,929	63	969	104	79	11,145	10.3
Carroll	6,177	29	661	140	122	7,129	15.1
Coshocton	9,741	109	1,220	118	104	11,292	9.0
Guernsey	9,608	89	1,058	179	111	11,046	11.6
Harrison	6,360	119	840	151	74	7,544	12.0
Holmes	6,608	78	483	38	69	7,276	16.5
Jefferson	7,789	53	871	95	60	8,867	7.9
Monroe	15,382	111	1,133	185	251	17,062	7.0
Muskingum	9,897	59	1,391	190	187	11,724	7.5
Noble	7,137	40	773	153	138	8,241	12.2
Tuscarawas	7,701	438	881	157	89	9,265	13.8
East-Central Unit	96,329	1,189	10,279	1,510	1,284	110,591	3.2

Table 92. continued

(In thousands of dry tons)

Counties	Timber	Non-timber				Total trees and shrubs	SE
		Salvable dead trees	Saplings	Seedlings	Shrubs		
Ashtabula	12,166	77	1,916	309	196	14,663	9.7
Columbiana	8,186	33	932	138	77	9,367	12.3
Mahoning	3,416	24	487	62	34	4,023	21.6
Trumbull	8,426	33	824	125	171	9,579	16.6
Ashland,Richland	12,404	84	673	131	56	13,348	13.8
Erie,Huron	6,776	77	440	47	32	7,372	23.6
Lorain,Medina	8,102	367	952	78	166	9,665	18.2
Portage,Summit	10,227	75	950	235	219	11,705	13.5
Stark,Wayne	7,988	59	630	108	98	8,883	17.1
Geauga,Lake	10,768	117	1,080	124	87	12,176	12.7
Northeastern Unit	88,459	945	8,884	1,357	1,135	100,780	4.8
Butler,Hamilton	4,300	54	383	64	23	4,823	18.0
Clark,Darke,Miami	5,119	57	466	82	20	5,745	18.5
Clinton,Greene,Montgomery Preble,Warren	9,717	118	729	169	71	10,804	13.2
Fairfield,Licking	14,332	147	1,364	181	113	16,137	11.2
Fayette,Franklin, Madison,Pickaway	4,008	12	285	43	26	4,375	28.3
Southwestern Unit	37,477	389	3,226	539	254	41,885	7.0
Knox	7,091	61	692	62	100	8,005	12.7
Allen,Auglaize,Mercer, Putnam,Van Wert	8,060	42	551	87	45	8,785	12.3
Champaign,Logan,Shelby, Union	7,175	55	800	124	107	8,261	15.7
Crawford,Hardin,Wyandot	8,361	130	424	57	5	8,977	15.2
Delaware,Marion,Morrow	7,927	228	853	88	70	9,167	13.5
Hancock,Ottawa,Sandusky, Seneca,Wood	8,780	111	888	132	81	9,991	11.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	9,055	72	760	148	78	10,113	12.9
Northwestern Unit	56,449	700	4,969	697	485	63,300	5.1
Total, all counties	459,261	5,250	45,567	7,536	4,904	522,520	1.7
SE	1.8	9.5	2.3	2.5	4.4	1.7	

RELATIONSHIP OF TOTAL FOREST BIOMASS COMPONENTS



CHANGE BETWEEN INVENTORIES

Two kinds of change occur when forest inventories are conducted: real change and change brought about by different sampling, measurement, and analytical techniques. Consistency between inventories is an important concern of the FIA units that conduct these periodic resource inventories. But it is also important to refine techniques to provide the most reliable estimates. Consequently, different techniques are a necessary evil present in inventories that are separated by a period of years.

Since 1979, when area and volume of Ohio's timberlands were last estimated, a number of procedural changes have occurred that will influence change between inventories. These changes have been described in the introduction to this report. Briefly they revolve around new height and volume equations, stand-size classifications, and how forest types are classified. All contribute to procedural change.

Naturally, every effort is made to keep procedural changes to a minimum, but where not possible, ways of explaining the differences must be incorporated. One technique that FIA uses is to recalculate data from past inventories using current procedures. For most area and volume statistics, four estimates are available:

KIND OF ESTIMATE	NUMBER AND TYPE OF PLOTS		NATIONAL FOREST ESTIMATES
Current estimate	4,807	remeasured 1/5-acres	includes National Forest
		remeasured 10-points	
	38	new 1/5-acre plots	
Comparison estimate	4,807	remeasured 1/5-acres	excludes National Forest
		remeasured 10-points	
1979 recalculated	2,128	new 10-point plots	excludes National Forest
1979 reported	4,887	remeasured 1/5-acres	includes National Forest[1]
		remeasured 10-points	
		new 10-point plots	

[1] Includes information supplied by the National Forest—plots are unavailable.

There is a reason why four estimates need to be used to track changes over time. It would seem that current estimates could be compared directly with reported estimates because both contain estimates on National Forest lands. This is true if procedural changes are ignored, or assumed to have minimal influence. If the opposite is assumed, plot data from the previous inventory that have been recalculated to reflect procedural changes should be used.

However, previous estimates were based on information supplied by the National Forest, not from FIA plots. Recalculating previous plot data results in a 1979 estimate without National Forest land because no plot base was available. To make a direct comparison then, a current estimate had to be made that did not contain National Forest data. Tables 93-100 are included for those wishing to make comparisons using these assumptions. It should be kept in mind, though, that the plot bases are different. The comparison estimate is based on 4,807 remeasured plots, while the recalculated 1979 estimates are based on only 2,128 10-point, new ground plots. This could and probably does generate some unknown bias.

Table 93. Area of timberland by forest type, forest-type group, and stand-size class (excludes Natioal Forest), Ohio, 1979

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Red pine	18.1	.0	.0	.0	18.1	59.9
White pine	7.0	30.3	64.4	.0	101.7	35.0
Scotch pine	.0	14.9	9.1	.0	24.0	58.3
White/red pine group	25.1	45.2	73.5	.0	143.8	27.6
Shortleaf pine	.0	7.3	.0	.0	7.3	100.0
Virginia pine	35.7	18.8	25.1	.0	79.6	26.1
Eastern redcedar	.0	.0	16.5	.0	16.5	70.9
Pitch pine	13.5	.0	.0	.0	13.5	71.0
Loblolly/shortleaf group	49.1	26.1	41.6	.0	116.8	22.8
Wh. pine/no.red oak/wh. ash	25.7	.0	.0	.0	25.7	58.5
Eastern redcedar/hardwood	.0	.0	16.1	.0	16.1	71.0
Shortleaf pine/oak	7.3	7.5	.0	.0	14.7	70.7
Virginia pine/oak	.0	7.4	19.6	.0	27.0	50.2
Other oak/pine	13.4	12.5	.0	.0	25.9	50.1
Oak/pine group	46.4	27.3	35.8	.0	109.4	25.9
Post, black, or bear oak	.0	23.6	8.4	.0	32.0	50.1
Chestnut oak	109.9	.0	.0	.0	109.9	25.0
White oak/red oak/hickory	331.8	221.6	105.5	.0	658.9	10.7
White oak	108.0	23.6	26.2	.0	157.9	22.7
Northern red oak	19.9	.0	.0	.0	19.9	74.0
Y-poplar/wh. oak/no.red oak	98.9	31.0	33.0	.0	162.8	21.5
Black locust	14.1	16.3	187.5	.0	217.8	20.0
Sweetgum/yellow-poplar	7.2	.0	7.1	.0	14.3	70.7
Black walnut	12.7	.0	31.2	.0	43.8	41.2
Yellow-poplar	57.4	13.4	20.9	.0	91.6	27.6
Hawthorn/reverting field	.0	8.3	129.4	16.6	154.3	30.7
Scarlet oak	12.4	.0	.0	.0	12.4	100.0
Sassafras/persimmon	7.5	6.2	53.5	.0	67.1	37.8
Red maple/central hardwood	.0	.0	31.0	.0	31.0	50.1
Mixed central hardwoods	1,183.3	572.8	789.0	.0	2,545.2	4.6
Oak/hickory group	1,963.0	916.8	1,422.6	16.6	4,319.0	3.0

Table 93. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	322.5	212.6	442.4	.0	977.5	9.4
Red maple(lowland)	.0	10.9	40.8	8.1	59.8	51.3
River birch/sycamore	73.8	6.7	35.7	.0	116.2	25.6
Cottonwood	46.0	.0	22.1	.0	68.1	39.4
Willow	33.0	16.1	5.1	.0	54.2	35.5
Sycamore/pecan/American elm	.0	7.6	.0	.0	7.6	100.0
American elm/green ash	14.9	27.8	27.8	.0	70.5	34.5
Elm/ash/red maple group	490.3	281.7	573.9	8.1	1,354.0	7.7
Sugar maple/beech/yellow birch	291.4	94.8	81.7	.0	467.8	12.8
Black Cherry	55.7	72.7	143.2	.0	271.7	18.3
Red maple/northern hardwoods	25.9	10.4	48.6	.0	84.9	31.3
Pin cherry/reverting field	.0	.0	7.4	.0	7.4	100.0
Mixed northern hardwoods	110.1	40.2	24.0	.0	174.2	23.3
Northern hardwoods group	483.0	218.2	304.9	.0	1,006.0	8.2
Aspen	21.9	.0	104.4	.0	126.3	28.3
Aspen/birch group	21.9	.0	104.4	.0	126.3	28.3
All forest types	3,078.7	1,515.3	2,556.6	24.7	7,175.3	1.6
SE	3.7	6.7	5.0	74.8	1.6	

Table 94. Area of timberland by forest type, forest-type group, and stand-size class (excludes National Forest), Ohio, 1991

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	10.6	4.4	10.9	.0	25.9	42.4
White pine	38.6	7.1	16.1	.0	61.7	29.2
Hemlock	2.5	.0	.0	.0	2.5	100.0
Scotch pine	.0	10.7	3.5	.0	14.2	59.4
White/red pine group	51.6	22.2	30.5	.0	104.3	21.8
White spruce	.0	.0	5.8	.0	5.8	100.0
Spruce/fir group	.0	.0	5.8	.0	5.8	100.0
Shortleaf pine	4.3	.0	.0	.0	4.3	100.0
Virginia pine	29.8	19.0	12.5	.0	61.4	27.7
Eastern redcedar	2.8	8.4	6.6	.0	17.8	42.5
Pitch pine	3.5	.0	.0	.0	3.5	100.0
Loblolly/shortleaf group	40.5	27.4	19.1	.0	87.0	22.0
Wh. pine/no.red oak/wh. ash	22.7	10.9	4.0	.0	37.6	41.6
Eastern redcedar/hardwood	2.4	3.4	3.8	.0	9.6	58.6
Shortleaf pine/oak	.0	.0	5.0	.0	5.0	100.0
Virginia pine/oak	24.0	11.3	5.4	.0	40.7	32.1
Other oak/pine	18.0	.0	3.5	.0	21.4	52.2
Oak/pine group	67.0	25.5	21.7	.0	114.3	21.3
Post, black, or bear oak	54.2	11.9	2.9	.0	69.1	26.5
Chestnut oak	58.1	2.5	12.4	.0	73.0	26.1
White oak/red oak/hickory	323.1	125.2	79.2	.0	527.5	9.9
White oak	115.6	33.1	38.4	.0	187.1	16.1
Northern red oak	48.9	3.3	11.7	.0	63.9	27.4
Y-poplar/wh. oak/no.red oak	111.8	13.3	17.3	.0	142.5	19.9
Black locust	33.2	1.8	62.5	4.7	102.2	22.3
Black walnut	8.5	2.1	13.1	.0	23.7	40.5
Yellow-poplar	94.2	62.7	45.7	.0	202.6	16.2
Hawthorn/reverting field	.0	10.7	75.2	.0	85.9	23.9
Scarlet oak	20.7	.0	10.1	.0	30.8	43.4
Sassafras/persimmon	5.6	8.2	19.5	.0	33.3	33.8
Red maple/central hardwood	75.9	26.5	30.9	.0	133.3	20.5
Mixed central hardwoods	1,423.5	639.5	507.6	.0	2,570.6	3.8
Oak/hickory group	2,373.5	940.6	926.7	4.7	4,245.4	2.5

Table 94. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Sweetbay/swamp tupelo/red mple	.0	.0	2.1	.0	2.1	100.0
Oak/gum/cypress group	.0	.0	2.1	.0	2.1	100.0
Black ash/Amer. elm/red maple	178.1	101.8	142.4	.0	422.2	11.9
Red maple(lowland)	.0	8.2	3.9	.0	12.1	53.0
Red maple(upland)	18.2	10.8	35.0	.0	63.9	29.7
River birch/sycamore	10.0	8.3	11.8	.0	30.1	33.9
Cottonwood	39.1	6.9	16.3	.0	62.4	34.2
Willow	24.7	3.6	25.8	.0	54.1	35.1
Sycamore/pecan/American elm	91.9	24.8	29.2	.0	145.9	21.3
American elm/green ash	40.7	5.6	.0	.0	46.3	34.5
Elm/ash/red maple group	402.6	170.0	264.4	.0	837.0	8.1
Sugar maple/beech/yellow birch	472.1	80.5	132.0	.0	684.6	8.7
Black Cherry	152.5	101.9	103.3	.0	357.6	12.1
Red maple/northern hardwoods	75.9	86.1	42.0	.0	203.9	16.3
Pin cherry/reverting field	.0	2.9	83.6	.0	86.5	25.1
Mixed northern hardwoods	252.3	204.0	129.7	.0	585.9	9.1
Northern hardwoods group	952.8	475.4	490.4	.0	1,918.6	4.7
Aspen	.0	32.9	36.3	.0	69.2	25.8
Aspen/birch group	.0	32.9	36.3	.0	69.2	25.8
All forest types	3,888.0	1,694.0	1,797.0	4.7	7,383.7	1.2
SE	2.7	5.1	4.9	100.0	1.2	

Table 95. Net volume of growing-stock trees on timberland by species and diameter class (excludes National Forest), Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	2.5	1.5	1.8	2.1	.4	.0	.0	.6	.0	.0	8.9	30.5
Red pine	6.1	9.4	9.9	3.9	1.8	1.8	.0	.0	.0	.0	32.9	43.5
White pine	10.9	20.4	10.5	14.6	1.9	.6	.0	.0	.0	.0	58.9	35.3
Virginia pine	11.8	21.6	24.8	13.2	8.3	2.5	.8	.6	.0	.0	83.7	23.0
Other softwoods	8.6	10.3	18.8	13.9	13.1	5.8	.4	2.0	.6	.0	73.5	24.0
Total softwoods	40.0	63.2	65.8	47.7	25.5	10.6	1.3	3.2	.6	.0	257.9	14.5
Red Maple	55.0	75.5	72.3	52.5	38.5	27.1	21.6	13.6	29.5	12.7	398.4	8.3
Sugar maple	39.6	64.2	83.0	76.3	57.8	52.1	39.7	32.4	31.8	6.2	483.1	8.4
Hickory	48.1	106.7	119.0	102.0	93.6	68.5	44.0	28.0	30.5	1.0	641.2	6.4
Beech	9.0	21.3	31.4	38.4	19.0	20.8	14.0	23.1	54.1	14.5	245.6	11.5
White ash	45.3	71.9	82.6	66.3	68.3	47.0	47.8	21.3	33.0	8.6	492.1	7.2
Black walnut	5.9	20.3	24.7	16.6	18.8	14.0	7.1	5.9	2.1	.0	115.3	9.7
Yellow-poplar	21.4	49.3	71.2	73.5	65.9	71.2	49.7	31.8	64.8	7.6	506.6	9.2
Sycamore	3.6	8.5	15.2	16.2	12.2	10.5	9.1	10.1	15.3	10.4	111.1	14.4
Aspen	29.1	48.7	37.7	37.0	17.5	9.2	4.3	.8	9.8	12.6	206.7	14.4
Black cherry	28.1	56.8	75.4	53.8	45.7	30.6	9.2	14.9	12.1	2.1	328.7	8.8
Select white oaks	31.2	61.9	77.2	76.9	106.9	100.9	96.9	68.2	103.6	28.1	752.0	7.0
Select red oaks	16.9	29.8	41.3	36.1	46.8	40.4	35.9	32.8	71.7	36.6	388.2	8.5
Other white oaks	10.6	26.6	39.8	58.2	48.3	45.6	25.0	20.4	27.0	7.2	308.8	13.0
Other red oaks	19.2	38.8	54.6	62.3	67.9	59.9	65.8	47.5	103.9	26.1	546.0	8.1
Black locust	15.3	20.8	28.3	14.4	11.0	7.2	4.0	.0	2.5	1.0	104.5	15.2
Elm	54.2	52.5	47.2	29.0	18.2	9.1	11.1	7.1	10.9	.0	239.2	9.1
Other hardwoods	55.7	48.8	58.8	47.3	37.6	28.8	24.2	16.8	31.7	11.2	360.9	7.9
Total hardwoods	488.3	802.7	959.6	856.8	773.9	642.9	509.4	374.6	634.2	186.0	6,228.4	2.3
Total, all species	528.2	865.9	1,025.3	904.5	799.4	653.5	510.7	377.8	634.8	186.0	6,486.2	2.2
SE	4.1	3.8	3.4	3.7	3.8	4.7	5.4	5.9	6.5	10.8	2.2	

Table 96. Net volume of growing-stock trees on timberland by species and diameter class (excludes National Forest), Ohio, 1991

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	8.0	6.1	2.2	1.5	1.2	.6	.0	.3	.0	.0	19.9	27.2
Red pine	7.3	10.9	7.3	7.9	4.0	2.0	1.0	.0	.0	.0	40.4	33.5
White pine	12.9	19.6	30.9	27.8	29.1	12.5	5.0	1.0	.3	.0	139.0	24.3
Virginia pine	12.7	26.2	31.7	23.1	12.8	4.9	3.1	.0	.0	.0	114.5	21.0
Other softwoods	12.3	13.2	16.1	8.9	7.5	7.6	2.4	.7	.2	.0	69.0	18.1
Total softwoods	53.2	76.1	88.2	69.2	54.6	27.6	11.5	2.0	.5	.0	382.9	12.2
Red Maple	99.3	141.8	146.4	142.3	121.9	84.3	68.6	45.3	72.6	26.6	949.2	6.3
Sugar maple	74.0	105.6	102.5	111.4	104.1	93.1	57.6	48.0	84.2	11.0	791.3	6.1
Hickory	50.8	124.2	150.4	140.3	124.3	113.8	82.1	30.5	45.0	5.0	866.5	5.3
Beech	11.2	21.0	37.7	42.8	43.8	29.8	32.8	35.6	111.1	37.2	403.0	9.5
White ash	58.9	96.0	116.0	111.3	97.7	85.5	67.4	43.9	75.0	10.9	762.6	5.9
Black walnut	12.8	20.3	28.6	35.0	35.9	17.9	14.5	10.0	4.3	.0	179.3	8.2
Yellow-poplar	35.1	64.8	105.5	116.7	123.2	107.7	84.3	73.4	99.3	13.1	823.1	7.0
Sycamore	3.0	5.8	15.6	20.8	21.1	23.0	16.2	18.8	31.1	25.8	181.1	12.0
Aspen	22.9	42.3	61.6	55.2	34.4	25.3	10.2	6.9	13.6	16.8	289.2	9.1
Black cherry	58.3	82.2	102.3	107.2	107.6	59.1	52.7	31.3	42.0	4.9	647.5	6.3
Select white oaks	28.2	59.4	100.3	99.7	116.1	119.1	93.8	80.1	116.4	58.6	871.8	6.5
Select red oaks	15.5	30.2	48.7	62.7	53.0	70.1	59.6	41.5	111.5	52.3	545.1	7.3
Other white oaks	9.9	18.4	32.3	41.2	39.1	46.5	34.0	26.1	33.9	2.8	284.2	10.0
Other red oaks	17.5	45.9	52.1	73.9	83.3	97.3	71.1	54.6	109.5	39.3	644.5	7.1
Black locust	11.8	17.1	25.0	19.5	16.1	10.8	6.4	4.0	5.1	.1	115.9	14.2
Elm	89.2	104.3	94.5	65.7	55.1	34.2	17.4	10.1	17.3	8.6	496.4	6.1
Other hardwoods	80.5	90.0	88.3	81.6	71.6	49.0	38.9	19.6	48.7	13.1	581.3	5.9
Total hardwoods	678.8	1,069.3	1,307.8	1,327.2	1,248.1	1,066.5	807.8	579.9	1,020.5	326.2	9,432.2	2.0
Total, all species	732.0	1,145.4	1,395.9	1,396.4	1,302.8	1,094.1	819.4	581.9	1,021.0	326.2	9,815.1	1.9
SE	2.8	2.7	2.8	2.7	3.0	3.5	4.1	4.7	5.0	10.2	1.9	

Table 97. Net volume of sawtimber trees on timberland by species and diameter class (excludes Natioal Forest), Ohio, 1979

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	5.2	6.2	1.5	.0	.0	2.3	.0	.0	15.2	33.7
Red pine	32.3	15.5	7.2	7.3	.0	.0	.0	.0	62.4	49.3
White pine	36.7	62.5	7.3	2.8	.0	.0	.0	.0	109.3	47.9
Virginia pine	77.2	48.2	32.6	9.9	3.3	2.7	.0	.0	174.0	26.3
Other softwoods	61.2	51.4	51.5	24.2	1.5	9.9	3.6	.0	203.2	24.9
Total softwoods	212.7	183.8	100.2	44.2	4.9	14.9	3.6	.0	564.1	16.5
Red Maple	.0	190.4	151.7	110.7	98.8	58.9	141.7	61.5	813.7	11.1
Sugar maple	.0	275.3	239.4	226.1	178.0	150.2	156.4	30.6	1,256.0	11.0
Hickory	.0	368.4	397.6	307.5	204.9	140.5	153.4	5.6	1,577.8	8.9
Beech	.0	154.8	88.9	97.6	63.3	115.0	280.4	81.5	881.5	12.4
White ash	.0	238.0	272.8	198.0	204.3	91.7	158.3	41.2	1,204.2	9.7
Black walnut	.0	60.5	79.6	59.1	34.7	26.2	9.4	.0	269.6	12.3
Yellow-poplar	.0	273.9	280.2	319.4	223.8	148.2	334.0	44.1	1,623.5	10.3
Sycamore	.0	57.2	50.7	46.0	41.3	46.6	76.7	61.6	380.1	17.3
Aspen	.0	141.5	74.3	40.8	18.8	4.0	51.8	77.1	408.3	20.4
Black cherry	.0	191.1	182.9	131.1	42.6	69.0	55.2	12.6	684.7	10.3
Select white oaks	.0	283.6	440.6	451.8	455.2	324.2	516.5	149.4	2,621.1	8.3
Select red oaks	.0	130.5	189.5	176.6	156.9	155.6	335.4	191.7	1,336.2	10.1
Other white oaks	.0	193.8	175.8	177.3	101.6	78.9	119.4	33.7	880.5	13.7
Other red oaks	.0	209.4	272.2	245.7	296.1	210.8	509.6	133.2	1,877.0	9.3
Black locust	.0	52.2	42.9	28.1	18.0	.0	10.7	4.4	156.3	21.7
Elm	.0	106.1	73.2	38.0	48.9	32.3	52.6	.0	351.1	15.5
Other hardwoods	.0	163.0	147.4	122.2	106.9	74.3	160.4	60.1	834.5	11.1
Total hardwoods	.0	3,089.6	3,159.8	2,775.8	2,294.1	1,726.6	3,121.8	988.3	17,156.0	3.1
Total, all species	212.7	3,273.4	3,260.0	2,820.0	2,299.0	1,741.4	3,125.4	988.3	17,720.1	3.0
SE	18.9	3.8	4.0	4.7	5.4	6.0	6.7	11.5	3.0	

Table 98. Net volume of sawtimber trees on timberland by species and diameter class (excludes National Forest), Ohio, 1991

(In millions of board feet)

Species	Diameter% class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Eastern redcedar	6.0	4.7	4.5	2.4	.0	1.2	.0	.0	18.9	39.0
Red pine	20.3	31.5	17.7	9.2	4.8	.0	.0	.0	83.5	42.3
White pine	103.8	112.7	130.3	60.0	24.2	4.8	1.4	.0	437.2	27.1
Virginia pine	105.8	89.1	51.3	20.2	13.4	.0	.0	.0	279.9	21.6
Other softwoods	55.2	34.1	31.6	32.9	10.5	3.0	1.1	.0	168.3	20.9
Total softwoods	291.1	272.2	235.4	124.8	52.8	9.0	2.5	.0	987.9	14.5
Red Maple	.0	537.4	496.4	352.8	312.3	209.8	365.6	141.7	2,416.2	8.3
Sugar maple	.0	433.3	440.8	409.1	259.7	224.6	392.2	60.3	2,220.0	7.6
Hickory	.0	538.7	531.4	521.7	395.2	147.5	227.9	29.1	2,391.6	6.6
Beech	.0	173.9	185.9	132.3	153.7	169.9	558.7	196.8	1,571.2	10.2
White ash	.0	446.1	415.6	365.2	305.9	201.9	359.1	55.1	2,148.8	7.7
Black walnut	.0	139.4	153.8	82.5	63.2	43.9	19.9	.0	502.7	10.1
Yellow-poplar	.0	464.0	545.6	507.1	408.9	370.4	533.0	73.3	2,902.4	7.9
Sycamore	.0	79.6	91.4	107.9	76.4	91.8	157.1	135.1	739.3	13.4
Aspen	.0	226.5	158.8	119.6	50.6	34.8	69.5	87.3	747.1	11.0
Black cherry	.0	430.6	443.4	261.2	240.1	145.7	205.4	25.4	1,751.7	8.0
Select white oaks	.0	392.6	511.4	554.3	444.1	381.0	587.6	307.5	3,178.3	7.2
Select red oaks	.0	233.6	211.5	295.3	264.4	192.9	554.5	275.3	2,027.5	8.2
Other white oaks	.0	159.0	153.4	194.3	147.3	121.7	154.5	13.2	943.4	11.0
Other red oaks	.0	268.8	340.7	425.6	322.1	252.4	527.3	187.4	2,324.3	8.0
Black locust	.0	74.9	66.5	44.6	30.5	18.9	22.9	.4	258.6	17.1
Elm	.0	249.8	227.1	149.9	76.8	46.1	81.4	44.8	876.1	8.7
Other hardwoods	.0	312.2	300.4	221.3	183.8	95.0	237.9	68.5	1,419.1	8.1
Total hardwoods	.0	5,160.5	5,274.0	4,744.7	3,735.0	2,748.4	5,054.4	1,701.1	28,418.1	2.5
Total, all species	291.1	5,432.7	5,509.4	4,869.6	3,787.8	2,757.4	5,056.9	1,701.1	29,406.0	2.4
SE	14.6	2.7	3.1	3.5	4.2	4.8	5.1	10.5	2.4	

Table 99. Area of timberland by county, geographic unit, and stand-size class, (excludes National Forest), Ohio, 1979

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Adams	67.8	54.5	88.2	.0	210.5	9.0
Brown	52.3	8.8	26.3	16.6	104.0	16.5
Clermont	24.4	16.3	48.8	.0	89.5	10.2
Gallia	36.8	67.2	84.8	.0	188.9	9.2
Highland	31.6	16.9	9.6	.0	58.1	17.6
Jackson	57.2	30.3	102.2	.0	189.8	9.5
Lawrence	45.7	40.9	81.4	.0	168.0	2.6
Pike	104.9	52.1	21.8	.0	178.8	2.6
Ross	101.6	35.7	28.1	.0	165.3	5.5
Scioto	158.0	85.1	12.1	.0	255.3	2.0
South-Central Unit	680.3	407.9	503.4	16.6	1,608.1	2.5
Athens	72.0	39.5	63.0	.0	174.6	6.3
Meigs	90.3	42.9	75.5	.0	208.6	13.6
Vinton	78.6	49.9	56.3	.0	184.8	6.1
Hocking,Perry	116.0	57.0	108.0	.0	281.0	4.0
Morgan,Washington	155.3	39.4	133.2	.0	327.9	9.7
Southeastern Unit	512.2	228.7	436.1	.0	1,177.0	4.0
Belmont	85.8	22.9	93.0	.0	201.7	11.8
Carroll	46.8	48.6	32.5	.0	127.8	14.0
Coshocton	76.4	30.2	61.9	.0	168.5	3.2
Guernsey	44.5	26.2	91.9	.0	162.6	8.7
Harrison	62.9	16.1	71.1	.0	150.0	12.8
Holmes	58.7	10.4	7.7	.0	76.8	17.5
Jefferson	38.9	31.9	68.3	.0	139.1	8.9
Monroe	81.9	37.3	58.1	.0	177.3	6.0
Muskingum	84.7	28.8	91.2	.0	204.7	9.3
Noble	13.6	24.2	128.2	.0	166.0	18.3
Tuscarawas	54.3	31.6	116.6	.0	202.6	12.6
East-Central Unit	648.4	308.2	820.5	.0	1,777.1	3.5
Ashtabula	68.5	24.6	80.1	8.1	181.3	5.5
Columbiana	31.0	34.1	69.7	.0	134.7	3.8
Mahoning	35.8	13.0	21.5	.0	70.3	5.7
Trumball	67.1	45.8	38.5	.0	151.4	10.4
Ashland,Richland	64.7	45.8	17.2	.0	127.6	7.9
Erie,Huron	19.9	27.3	10.3	.0	57.5	19.2
Lorain,Medina	54.3	16.7	34.4	.0	105.4	13.9
Portage,Summit	76.8	17.3	75.7	.0	169.8	17.7

Table 99. continued.

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Stark,Wayne	41.7	42.3	38.9	.0	122.8	16.2
Geauga,Lake	90.9	16.4	68.0	.0	175.4	7.3
Northeastern Unit	550.7	283.2	454.3	8.1	1,296.3	3.7
Butler,Hamilton	33.3	20.0	26.1	.0	79.4	19.0
Clark,Darke,Miami	43.2	6.2	22.5	.0	71.9	12.9
Clinton,Greene,Montgomery Preble,Warren	52.7	29.9	48.7	.0	131.4	18.3
Fairfield,Licking	101.4	30.7	37.6	.0	169.7	5.4
Fayette,Franklin, Madison,Pickaway	19.4	5.5	33.6	.0	58.4	35.1
Southwestern Unit	250.0	92.3	168.5	.0	510.8	7.3
Knox	39.0	16.1	32.2	.0	87.3	5.4
Allen,Auglaize,Mercer, Putnam,Van Wert	54.9	23.9	12.9	.0	91.8	22.5
Champaign,Logan,Shelby, Union	44.7	57.0	.0	.0	101.7	17.9
Crawford,Hardin,Wyandot	48.5	12.4	12.4	.0	73.3	19.4
Delaware,Marion,Morrow	73.6	.0	37.6	.0	111.3	12.9
Hancock,Ottawa,Sandusky, Seneca,Wood	66.5	43.8	21.5	.0	131.7	19.6
Defiance,Fulton,Henry, Lucas,Paulding,Williams	110.0	41.7	57.2	.0	208.8	7.6
Northwestern Unit	437.2	195.0	173.8	.0	805.9	5.7
Total, all counties	3,078.7	1,515.3	2,556.6	24.7	7,175.3	1.6
SE	3.7	6.7	5.0	74.8	1.6	

Table 100. Area of timberland by county, geographic unit, and stand-size class (excludes National Forest), Ohio, 1991

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Adams	135.8	52.0	48.5	.0	236.3	5.0
Brown	55.8	26.8	25.4	.0	108.0	10.5
Clermont	44.4	20.3	43.1	.0	107.8	8.3
Gallia	49.3	48.2	75.7	.0	173.2	3.9
Highland	60.6	11.6	13.2	.0	85.3	10.9
Jackson	57.8	52.8	54.5	.0	165.0	5.8
Lawrence	91.3	21.1	54.4	.0	166.9	5.7
Pike	94.6	44.0	39.5	.0	178.1	3.0
Ross	90.9	41.8	31.4	.0	164.0	9.1
Scioto	171.3	32.4	68.0	.0	271.8	3.1
South-Central Unit	851.7	351.0	453.7	.0	1,656.4	1.9
Athens	123.3	37.1	30.7	.0	191.2	5.9
Meigs	115.7	28.8	50.2	.0	194.7	5.1
Vinton	117.4	52.1	34.0	.0	203.5	2.4
Hocking,Perry	153.9	77.3	59.1	.0	290.3	4.7
Morgan,Washington	157.3	106.3	96.7	.0	360.2	4.5
Southeastern Unit	667.6	301.6	270.7	.0	1,239.9	2.1
Belmont	100.4	27.6	51.1	.0	179.1	7.8
Carroll	60.8	17.6	33.6	.0	112.0	6.6
Coshocton	89.4	34.7	45.0	.0	169.2	6.9
Guernsey	73.5	49.7	59.3	.0	182.5	8.8
Harrison	53.4	43.5	59.2	.0	156.2	7.3
Holmes	52.6	22.8	5.6	.0	81.0	12.3
Jefferson	79.1	40.6	25.9	4.7	150.1	6.2
Monroe	143.1	36.2	6.3	.0	185.6	2.8
Muskingum	71.2	61.0	78.6	.0	210.8	4.2
Noble	49.9	35.5	48.8	.0	134.1	9.9
Tuscarawas	73.9	35.4	48.2	.0	157.5	9.8
East-Central Unit	847.3	404.5	461.7	4.7	1,718.1	2.2
Ashtabula	50.9	104.4	70.4	.0	225.7	6.3
Columbiana	66.6	30.5	47.7	.0	144.7	8.2
Mahoning	34.3	7.6	16.6	.0	58.5	21.1
Trumbull	65.3	38.3	35.6	.0	139.2	11.3
Ashland,Richland	95.9	35.2	18.4	.0	149.5	11.0
Erie,Huron	45.1	9.3	13.7	.0	68.1	18.2
Lorain,Medina	81.1	23.8	12.1	.0	117.1	14.7
Portage,Summit	80.3	50.9	61.3	.0	192.5	9.9

Table 100. continued

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Stark,Wayne	47.6	30.2	35.8	.0	113.7	12.5
Geauga,Lake	89.4	39.9	24.2	.0	153.5	13.0
Northeastern Unit	656.6	370.1	335.8	.0	1,362.5	3.6
Butler,Hamilton	42.6	20.8	23.9	.0	87.4	17.6
Clark,Darke,Miami	46.0	6.2	22.2	.0	74.4	20.0
Clinton,Greene,Montgomery Preble,Warren	101.5	8.2	65.2	.0	174.9	10.4
Fairfield,Licking	139.5	41.8	25.1	.0	206.4	9.9
Fayette,Franklin, Madison,Pickaway	43.1	.0	23.2	.0	66.3	17.0
Southwestern Unit	372.6	77.1	159.6	.0	609.3	6.0
Knox	55.5	31.4	11.0	.0	97.8	8.2
Allen,Auglaize,Mercer, Putnam,Van Wert	80.1	6.6	9.0	.0	95.7	9.0
Champaign,Logan,Shelby, Union	65.4	53.3	32.6	.0	151.3	10.5
Crawford,Hardin,Wyandot	65.0	6.1	.0	.0	71.1	13.7
Delaware,Marion,Morrow	74.8	29.7	21.8	.0	126.4	14.0
Hancock,Ottawa,Sandusky, Seneca,Wood	77.4	28.9	28.3	.0	134.6	9.9
Defiance,Fulton,Henry, Lucas,Paulding,Williams	73.9	33.9	12.7	.0	120.6	12.0
Northwestern Unit	492.2	189.8	115.4	.0	797.5	4.3
Total, all counties	3,888.0	1,694.0	1,797.0	4.7	7,383.7	1.2
SE	2.7	5.1	4.9	100.0	1.2	

DEFINITIONS

Acceptable tree. (a) Live sawtimber trees that do not qualify as preferred trees but are not cull trees. (b) Live poletimber trees that prospectively will not qualify as preferred trees, but are not now or prospectively cull trees.

Accretion. The estimated net growth on growing-stock trees that are measured during the previous inventory (divided by the number of growing seasons between surveys to produce average annual accretion). It does not include the growth on trees that were cut during the period, nor those trees that died.

Basal-area class. A classification of forest land in terms of basal area (cross-sectional area of a tree stem at breast height in square feet per acre) of all live trees of all sizes.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Board-foot stand-volume class. A classification of forest land in terms of net board-foot volume of sawtimber trees per acre.

Browse-utilization class. There are four levels of browse use: none, light (1 to 10 percent available), moderate (11 to 40), and heavy (more than 40 percent).

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Commercial species. Tree species currently or prospectively suitable for industrial wood products; excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Condition class. Classification of trees based on live or dead and condition of top of the tree (i.e. intact, broken, dead).

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation or harvest, and maintained orchards.

Cubic-foot stand-volume class. A classification of forest land in terms of net cubic-foot volume of all live trees per acre.

Cull decrement. The net volume of rough or rotten trees in the previous inventory that became growing-stock trees in the current inventory (divided by the number of growing seasons between surveys to produce average annual cull decrement).

Cull tree. A rough tree or a rotten tree.

Cull increment. The net volume of growing-stock trees in the previous inventory that became rough or rotten trees in the current inventory (divided by the number of growing seasons between surveys to produce average annual cull increment).

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Dry ton. A unit of measure of dry weight equivalent to 2,000 pounds or 907.1848 kilograms.

Dry weight. The weight of wood and bark as it would be if it had been oven-dried; usually expressed in pounds or tons.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not; excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Forest industry lands. Lands owned by companies or individuals that operate primary wood-using plants.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is one acre. The components that make up forest land are timberland and all noncommercial forest land (see definitions).

Forest type. A classification of forest land based on the species that form a plurality of live-tree basal-area stocking.

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in this state were combined into the following major forest-type groups (the descriptions apply to forests in this state):

White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include red spruce, maple, and yellow-poplar.

Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include yellow birch and red maple.

Loblolly/shortleaf pine--forest in which loblolly, shortleaf or other southern yellow pines (except longleaf or slash pine), singly or in combination, make up a plurality of the stocking; common associates include hickory and maple.

Oak/pine--forest in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking and in which pines or eastern redcedar contribute 25 to 50 percent of the stocking; hemlock, maple, sweet birch, and yellow-poplar are associates.

Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 25 percent of the stocking; common associates include hard pines, hemlock, maple, birch, hickory, and yellow-poplar.

Oak/gum/cypress--forests in which tupelo, blackgum, sweetgum, oak, or southern cypress, singly or in combination, make up a plurality of the stocking; common associates include hickory, maple, yellow-poplar, and beech.

Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include sugar maple, hickory, yellow-poplar, and black cherry.

Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include hard pines, hemlock, hickory, ash, and yellow-poplar.

Aspen/birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking.

Geographic unit. A county or a group of counties within a state that is large enough to provide an adequate sample that will yield statistically reliable estimates of timberland area, volume, and components of change.

Green ton. A unit of measure of green weight equivalent to 2,000 pounds or 907.1848 kilograms.

Green weight. The weight of wood and bark as it would be if it had been recently cut; usually expressed in pounds or tons.

Gross growth. The sum of accretion and ingrowth.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, or seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Indian lands. (a) Lands held in trust by the United States or States for Indian tribes or individual Indians. (b) Lands owned in fee by Indian tribes whether subject to Federal or State restrictions against alienation or not.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches d.b.h. or larger during the period between inventories (divided by the number of growing seasons between surveys to produce average annual ingrowth).

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D=diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc. is 120 feet, and the minimum size of lakes, etc. is 1 acre.

Mast. Seed produced by woody-stemmed perennial plants; generally refers to soft (fruit) and hard (nuts) mast.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Miscellaneous private lands. Privately owned lands other than forest industry and farmer-owned lands.

Mortality. The estimated net volume of growing-stock trees at the previous inventory that died from natural causes before the current inventory (divided by the number of growing seasons between surveys to produce average annual mortality) .

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Net change. The difference between the current and previous inventory estimates of growing-stock volume (divided by the number of growing seasons between surveys to produce average annual net change). Components of net change are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement, minus removals.

Net dry weight. The dry weight of woody material less the weight of all unsound (rotten) material.

Net green weight. The green weight of woody material less the weight of all unsound (rotten) material.

Net growth. The change, resulting from natural causes, in growing-stock volume during the period between surveys (divided by the number of growing seasons to produce average annual net growth). Components of net growth are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement.

Noncensus water. Streams/rivers between 120 feet and 1/8 mile in width, and bodies of water between 1 and 40 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial forest land. Reserved timberland, Christmas tree plantations, other forest land, and other reserved forest land (see definitions).

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, or highways.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with all-live trees.

Other cropland. Includes cropland used for cover crops and soil improvement (legumes).

Other farmland. All nonforest land on a farm excluding cropland, pasture, and idle farmland; includes farm lanes, stock pens, and farmsteads.

Other forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions (formerly known as unproductive forest land).

Other reserved forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions, and is protected through statute or administrative designation.

Ownership class. A classification of forest land based on ownership and nature of business or control of decisionmaking for the land. It encompasses all types of legal entities having ownership interest in the land, whether public or private.

Pasture land. Includes any pasture land other than cropland and woodland pasture. Can include lands that had lime fertilizer or seed applied, or that had been improved by irrigation, drainage, or control of weeds and brush.

Poletimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber tree. A live tree of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than a sawtimber tree.

Preferred tree. A high-quality tree, from a lumber viewpoint, that would be favored in cultural operations. General characteristics include grade 1 butt log (if sawtimber size), good form, good vigor, and freedom from serious damage.

Removals. The net growing-stock volume harvested or killed in logging, cultural operations (such as timber stand improvement) or land clearing, and also the net growing-stock volume neither harvested nor killed but growing on land that was reclassified from timberland to noncommercial forest land or nonforest land during the period between surveys. This volume is divided by the number of growing seasons to produce average annual removals.

Reserved timberland. Forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative designation; land exclusively used for Christmas tree production (formerly known as productive reserved forest land).

Rotten tree. A live tree of commercial species that does not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and does not meet regional specifications for freedom from defect primarily because of rot; that is, more than 50 percent of the cull volume in the tree is rotten.

Rough tree. (a) The same as a rotten tree except that a rough tree does not meet regional specifications for freedom from defect primarily because of roughness or poor form; also (b) a live tree of noncommercial species.

Salvable dead tree. A tree at least 5.0 inches d.b.h. that has died recently and still has intact bark; may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Sapling. A live tree 1.0 inch through 4.9 inches in d.b.h.

Sapling-seedling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all-live trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and freedom from defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Log-Grade Classification.)

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

Sawlog top. The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches diameter outside bark (d.o.b.) for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber tree. A live tree of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedling. A live tree less than 1.0 inch in d.b.h. and at least 1 foot tall.

Shrub. Woody-stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity; defined by species.

Snag. A standing dead tree with most or all of its bark missing that is at least 5.0 inches in d.b.h. and at least 10 feet tall (does not include salvable dead).

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Stand-area class. The area, contiguous to the plot, that is of the same overall stand size and major type group (hardwood, softwood, or uniform mixture of both).

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber or sawtimber) of all-live trees in the area.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches or larger in d.b.h., or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used in this report: all-live trees and growing-stock trees. The relationships between the classes and the percentage of the stocking standard are: nonstocked (0 to 9), poorly stocked (10 to 59), moderately stocked (60 to 99), fully stocked (100 to 129), and overstocked (130 to 160).

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (formerly known as commercial forest land).

Top. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches in diameter outside bark); generally includes the uppermost stem, branches, and twigs of the tree, but not the foliage.

Tree class. A classification of the quality or condition of trees for sawlog production. Tree class for sawtimber trees is based on their current condition. Tree class for poletimber trees is a prospective determination--a forecast of their potential quality when they reach sawtimber size (11.0 inches in d.b.h. for hardwoods, 9.0 inches for softwoods).

Tree grade. A classification of sawtimber quality based on guidelines for tree grades for hardwoods, white pine, and southern pine. (Note: Red pine was graded using guidelines for southern pine. All specifications are shown under Tree-Grade Classification.)

Trees. Woody plants that have well-developed stems that usually are more than 12 feet tall at maturity.

Unproductive forest land. See Other forest land.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark, or to the point where the main stem or fork breaks into limbs.

Urban timberland. Forest land sufficiently productive to qualify as timberland that is completely surrounded by or nearly surrounded by urban development (not parks), whether commercial, industrial, or residential.

SPECIES GROUPS OF OHIO

SPECIES GROUP	COMMON NAME
Eastern Redcedar	
Juniperus virginia	eastern redcedar
Red Pine	
Pinus resinosa	red pine
White Pine	
Pinus strobus	white pine
Virginia Pine	
Pinus virginiana	Virginia pine
Other Softwoods	
Contains all other softwoods measured in Ohio.	
Red Maple	
Acer ruburm	red maple
A. saccharinum	silver maple
Sugar Maple	
A. nigrum	black maple
A. saccharum	sugar maple
Hickory	
Contains all hickories measured in Ohio.	
Beech	
Fagus grandifolia	American beech
White Ash	
Fraxinus americana	white ash
Black Walnut	
Juglans nigra	black walnut
Yellow-poplar	
Liriodendron tupilpifera	yellow-poplar
Sycamore	
Platanus occidentalis	sycamore
Aspen	
Populus balsamifera	balsam poplar
P. deltoides	eastern cottonwood
P. grandidentata	bigtooth aspen
P. hererophylla	swamp cottonwood
P. tremuloides	quaking aspen

SPECIES GROUP	COMMON NAME
Black Cherry	
Prunus serotina	black cherry
Select White Oaks	
Quercus alba	white oak
Q. bicolor	swamp white oak
Q. macrocarpa	bur oak
Q. michauxii	swamp chestnut oak
Q. muehlenbergii	chinkapin oak
Select Red Oaks	
Q. falcata var. *pagodifolia*	cherrybark oak
Q. rubra	northern red oak
Q. shumardii	Shumard oak
Other White Oaks	
Q. lyrata	overcup oak
Q. prinus	chestnut oak
Q. stellata	post oak
Other Red Oaks	
Q. coccinea	scarlet oak
Q. ellipsoidalis	northern pin oak
Q. falcata	southern red oak
Q. ilicifolia	bear oak
Q. imbricaria	shingle oak
Q. laurifolia	laurel oak
Q. marilandica	blackjack oak
Q. nigra	water oak
Q. palustris	pin oak
Q. phellos	willow oak
Q. velutina	black oak
Black Locust	
Robina psuedoacacia	black locust
Elm	
Ulmus alata	winged elm
U. americana	American elm
U. rubra	slippery elm
U. thomasii	rock elm
Other hardwoods	
Contains all other hardwoods measured in Ohio.	

NORTHEASTERN TREE AND SHRUB SPECIES[1]

COMMON NAME	GENUS AND SPECIES
Evergreen Trees	
fir	*Abies sp.*
balsam fir	*b. balsamea*
cedar	*Chamaecyparis sp.*
Atlantic white-cedar	*C. Thyoides*
eastern redcedar	*Juniperus virginiana*
larch	*Larix sp.*
tamarack	*L. larcina*
Norway spruce	*Picea abies*
white spruce	*P. glauca*
black spruce	*P. mariana*
blue spruce	*P. pungens*
red spruce	*P. rubens*
jack pine	*Pinus banksiana*
shortleaf pine	*P. echinata*
Table Mountain pine	*P. pungens*
red pine	*P. resinosa*
pitch pine	*P. rigida*
pond pine	*P. serotina*
eastern white pine	*P. strobus*
Scotch pine	*P. sylvestris*
loblolly pine	*P. taeda*
Virginia pine	*P. virginiana*
Austrian pine	*P. nigra*
Douglas fir	*Pseudotsuga menziesii*
baldcypress	*Taxodium distichum*
northern white-cedar	*Thuja occidentalis*
eastern hemlock	*Tsuga canadensis*
Deciduous Trees	
maple	*Acer sp.*
boxelder	*A. negundo*
black maple	*A. nigrum*
striped maple	*A. pensylvanicum*
red maple	*A. rubrum*
silver maple	*A. saccharinum*
sugar maple	*A. saccharum*
mountain maple	*A. spicatum*
buckeye, horsechestnut	*Aesculus sp.*
Ohio buckeye	*A. glabra*
yellow buckeye	*A. octandra*
ailanthus	*Ailanthus altissima*
serviceberry	*Amelamchier sp.*
pawpaw	*Asimina triloba*
birches	*Betula sp.*
yellow birch	*B. alleghaniensis*
sweet birch	*B. lenta*
river birch	*B. nigra*
paper birch	*B. papyrifera*
gray birch	*B. populifolia*
American hornbeam	*B. caroliniana*

COMMON NAME	GENUS AND SPECIES
hickory	*Carya sp.*
water hickory	*C. aquatica*
bitternut hickory	*C. cordiformis*
pignut hickory	*C. glabra*
pecan	*C. illinoensis*
shellbark hickory	*C. laciniosa*
shagbark hickory	*C. ovata*
mockernut hickory	*C. tomentosa*
American chestnut	*Castanea dentata*
catalpa	*Catalpa sp.*
northern catalpa	*C. speciosa*
sugarberry	*Celtis laevigata*
hackberry	*C. occidentalis*
eastern redbud	*Cercis canadensis*
yellowwood	*Cladrastis lutea*
flowering dogwood	*Cornus florida*
hawthorn	*Crataegus sp.*
persimmon	*Diospyros virginiana*
American beech	*Fagus grandifolia*
ash	*Fraxinus sp.*
white ash	*F. americana*
black ash	*F. nigra*
green ash	*F. pennsylvanica*
pumpkin ash	*F. profunda*
blue ash	*F. quadrangulata*
honeylocust	*Gleditsia triacanthos*
Kentucky coffeetree	*Gymnocladus dioicus*
American holly	*Ilex opaca*
butternut	*Juglans cinerea*
black walnut	*J. nigra*
sweetgum	*Liquidambar styraciflua*
yellow-poplar	*Liriodendron tulipifera*
Osage-orange	*Maclura pomifera*
magnolia	*Magnolia sp.*
cucumbertree	*M. acuminata*
sweetbay	*M. virginiana*
apple	*Malus sp.*
mulberry	*Morus sp.*
white mulberry	*M. alba*
red mulberry	*M. rubra*
gum	*Nyssa sp.*
water tupelo	*Nyssa aquatica*
blackgum	*N. sylvatica*
swamp tupelo	*N. biflora*
eastern hophornbeam	*Ostrya virginiana*
sourwood	*Oxydendrum arboreum*
Paulownia	*Paulownia tomentosa*
Sycamore	*Platanus occidentalis*
aspen, cottonwood	*Populus sp.*
balsam poplar	*P. balsamifera*
eastern cottonwood	*P. deltoides*
bigtooth aspen	*P. grandidentata*
swamp cottonwood	*P. heterophylla*
quaking aspen	*P. tremuloides*

COMMON NAME	GENUS AND SPECIES
cherry, plum	*Prunus sp.*
pin cherry	*P. pensylvanica*
black cherry	*P. serotina*
chokecherry	*P. virginiana*
oak	*Quercus sp.*
white oak	*Q. alba*
swamp white oak	*Q. bicolor*
scarlet oak	*Q. coccinea*
northern pin oak	*Q. ellipsoidalis*
southern pin oak	*Q. falcata var. falcata*
cherrybark oak	*Q. falcata var. pagodaefolia*
bear oak	*Q. ilicifolia*
shingle oak	*Q. imbricaria*
laurel oak	*Q. laurifolia*
overcup oak	*Q. lyrata*
bur oak	*Q. macrocarpa*
blackjack oak	*Q. marilandica*
swamp chestnut oak	*Q. michauxii*
chinkapin oak	*Q. muehlenbergii*
water oak	*Q. nigra*
pin oak	*Q. palustris*
willow oak	*Q. phellos*
chestnut oak	*Q. prinus*
northern red oak	*Q. rubra*
Shumard oak	*Q. shumardii*
post oak	*Q. stellata*
black oak	*Q. velutina*
black locust	*Robinia psuedoacacia*
willow	*Salix sp.*
black willow	*S. nigra*
sassafrass	*Sassafras albidum*
American mountain-ash	*Sorbus americana*
Europeon mountain-ash	*S. aucuparia*
basswood	*Tilia sp.*
American basswood	*T. americana*
white basswood	*T. heterophylla*
elm	*Ulmus sp.*
winged elm	*U. alata*
American elm	*U. americana*
slippery elm	*U. rubra*
rock elm	*U. thomasii*
Evergreen Shrubs	
common juniper	*Juniperus communis*
Canada yew	*Taxus canadensis*
bog rosemary	*Andromeda glaucophylla*
sheep laurel	*Kalmia augustifolia*
mountain laurel	*K. latifolia*
Labrador tea	*Ledum groenlandicum*
rhododendron	*Rhododendron sp.*
sweetleaf	*Symplocos tinctoria*

COMMON NAME	GENUS AND SPECIES
Deciduous Shrubs	
alder	*Alnus sp.*
Hercules club	*Aralia spinosa*
chokeberry	*Aronia sp.*
azalea	*Azalea sp.*
barberry	*Berberis sp.*
New Jersey tea	*Ceanothus americanus*
leatherleaf	*Chamaedaphne calyculata*
fringetree	*Chionanthus virginicus*
sweetfern	*Comptonia peregrina*
alternate-leaved dogwood	*Cornus alternifolia*
silky dogwood	*C. amomum (obliqua)*
round-leaved dogwood	*C. rugosa (circinata)*
gray-stemmed dogwood	*C. racemosa (paniculata)*
red-osier dogwood	*C. stolonifera*
American hazelnut	*Corylus americana*
bleaked hazelnut	*C. cornuta*
leatherwood	*Dirca palustris*
autumn olive	*Elaeagnus augustifolia*
huckleberry	*Gaylussacia sp.*
witch-hazel	*Hamamelis virginiana*
large-leaf holly	*Ilex montana (monticola)*
winterberry holly	*I. verticillata*
common spicebush	*Lindera benzoin*
honeysuckle	*Lonicera sp.*
Allegheny menziesia	*Menziesia pilosa*
bayberry	*Myrica pensylvanica*
mountain-holly	*Nemopanthus mucronatus*
ninebark	*Physocarpus opulifolius*
buckthorn	*Rhamnus sp.*
winged sumac	*Rhus copallina*
smooth sumac	*R. glabra*
staghorn sumac	*R. typhina*
poison sumac	*R. vernix*
current, gooseberry	*Ribes sp.*
rose	*Rosa sp.*
brier, bramble, raspberry	*Rubus sp.*
American elderberry	*Sambucus canadensis*
red-berried elderberry	*S. racemosa*
buffalo-berry, soapberry	*Shepherdia canadensis*
spirea	*Spirea sp.*
snowberry	*Symphoricarpos alba*
American bladdernut	*Staphylea trifolia*
blueberry	*Vaccinium sp.*
viburnum	*Viburnum sp.*
maple-leaved viburnum	*V. acerifolium*
hobblebush viburnum	*V. alnifolium*
wild raisin	*V. cassinoides*
arrowwood	*V. dentatum*
nannyberry	*V. lentago*
blackhaw	*V. prunifolium*
highbush cranberry	*V. trilobum*
common prickly-ash	*Zanthoxylum americanum*

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[1] Some species may not have been encountered in Ohio.

METRIC EQUIVALENTS

1 acre = 4,046.86 square meters
1 acre = 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1 board foot[1] = 0.00348 cubic meters
1 board foot[1] = 3,480 cubic centimeters
1,000 board feet[1] = 3.48 cubic meters
1,000,000 board feet[1] = 3,480 cubic meters
1 cubic foot = 0.028317 cubic meters
1,000 cubic feet = 28.317 cubic meters
1,000,000 cubic feet = 28,317 cubic meters
1 cord (wood, bark, and air space) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters
1 square foot = 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare
1 cubic foot per acre = 0.0699 cubic meters per hectare
1 ton = 907.1848 kilograms
1,000 tons = 907.1848 metric tons
Breast height = 1.4 meters above ground level

[1] Although 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate obtained by conversion will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (d.i.b.) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Because the board foot unit is not a true measure of wood volume and because products other than dimension lumber are becoming important, this unit may be phased out and replaced by the cubic meter.

LITERATURE CITED

Birch, Thomas W.; Wharton, Eric H. 1982. **Land use change in Ohio, 1952 to 1979.** Resour. Bull. NE-70. Broomall, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 24 p.

Dennis, Donald F. 1983. **An analysis of Ohio's forest resources.** Resour. Bull. NE-75. Broomall, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 46 p.

Dennis, Donald F.; Birch, Thomas W. 1981. **Forest statistics for Ohio—1979.** Resour. Bull. NE-68. Broomall, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 79 p.

Diller, Oliver D. 1944. **Ohio's forest resources, progress report based on a survey conducted during 1939-1943 and a recommended long-range forestry program for Ohio.** For. Publ. No. 76. Wooster, OH: Ohio Agricultural Experiment Station. 109 p.

Hutchison, O. Keith; Morgan, James T. 1956. **Ohio's forests and wood-using industries.** For. Surv. Release 19. Columbus, OH: US. Department of Agriculture, Forest Service, Central States Forest Experiment Station. 40 p.

Kingsley, Neal P.; Mayer, Carl E. 1970. **The timber resources of Ohio.** Resour. Bull. NE-19. Upper Darby, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 137 p.

Scott, Charles T. 1979. **Northeastern forest survey board-foot volume equations.** Res. Note NE-271. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 3 p.

Scott, Charles T. 1981. **Northeastern forest survey revised cubic-foot volume equations.** Res. Note NE-304. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 3 p.

Widmann, Richard H.; Long, Michael. 1992. **Ohio timber products output—1979.** Resour. Bull. NE-121. Radnor, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 21 p.

Wharton, Eric H.; Griffith, Douglas M. 1992. **Methods to estimate total forest biomass for extensive forest surveys.** Radnor, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 52 p.

LIST OF AVAILABLE TABLES

The following is a list of tables that are currently available for the State of Ohio. Those with a table number (i.e, Table 1.), can be found within this report. To obtain a copy of any table that is not published, please fill out an order form at the back of this publication. Use the 4-character code that precedes each title (i.e. **AR04**), and specify at which level the data is desired (state, unit, or county). The level of data that are available follow each major grouping. For tables not listed, please call Forest Inventory and Analysis at: (215) 975-4075.

AREA - available at State, Unit, and County levels

AR01	Table 1.	Land area by land class
AR02	Table 2.	Area of timberland by forest type, forest-type group, and stand-size class
AR03	Table 3.	Area of timberland by forest-type group and ownership class
AR04		Area of timberland by forest-type group and stand-size class
AR05		Area of timberland by forest-type group and cubic-foot stand-volume class
AR06		Area of timberland by forest-type group and board-foot stand-volume class
AR07		Area of timberland by forest-type group and stocking class of all live trees
AR08		Area of timberland by forest-type group and stocking class of growing-stock trees
AR09		Area of timberland by forest-type group and soil drainage class
AR10	Table 4.	Area of timberland by stand-size class and ownership class
AR11	Table 6.	Area of timberland by stand-size class, forest-type group, and basal-area class
AR12	Table 5.	Area of timberland by ownership class and stocking class of growing-stock trees
AR13		Area of timberland by ownership and stand-size class
AR14		Area of timberland by board-foot stand-volume class and ownership class
AR15		Area of timberland by potential site productivity and ownership class
AR16		Area of timberland by timber management class and forest-type group

NUMBER OF TREES - available at State, Unit, and County levels

NT01	Table 7.	Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class
NT02	Table 11.	Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition class
NT03		Number of trees (5.0+ inches) with observed cavities on timberland by species and presence of cavities
NT04	Table 8.	Number of growing-stock trees on timberland by species and diameter class
NT05		Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by forest-type and species
NT06		Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and incidence of serious damage
NT07	Table 9.	Number of live trees on timberland by species and diameter class
NT08		Number of live trees on timberland by expanded species and tree-size class
NT09		Number of live trees on timberland by diameter class, tree class, and softwoods and hardwoods
NT10		Number of live trees (5.0+ inches d.b.h.) on timberland by species and diameter class
NT11		Number of live nut- and fruit-producing trees on timberland by species and diameter class
NT12		Number of cull trees (5.0+ inches d.b.h.) on timberland by species and diameter class
NT13		Number of cull trees (5.0+ inches d.b.h.) on timberland by species, cull category and tree size
NT14		Number of cull trees (5.0+ inches d.b.h.) on timberland by species group and diameter class
NT15		Number of cull trees (5.0+ inches d.b.h.) by species and general damage
NT16	Table 10.	Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter class
NT17		Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type
NT18	Table 12.	Number of seedlings, saplings, and shrubs on timberland by species and stand-size class
NT19		Number of seedlings, saplings, and shrubs on timberland by species and forest-type group
NT20		Number of seedlings, saplings, and shrubs on timberland by species and browse-utilization class

SAWTIMBER VOLUME - available at State, Unit, and County levels

BF01	Table 13.	Net volume of sawtimber trees on timberland by species and diameter class
BF02	Table 14.	Net volume of sawtimber trees on timberland by species, size class, and tree grade
BF03	Table 15.	Net volume of sawtimber trees on timberland by forest type and stand-size class
BF04		Net volume of sawtimber trees on timberland by forest-type group and ownership class
BF05		Net volume of sawtimber trees on timberland by expanded species and diameter class

GROWING-STOCK VOLUME - available at State, Unit, and County levels

CF01	Table 16.	Net volume of growing-stock trees on timberland by species and diameter class
CF02	Table 21.	Net volume of growing-stock trees on timberland by species and stand-size class
CF03		Net volume of growing-stock trees on timberland by species and cubic-foot stand-volume class
CF04		Net volume of growing-stock trees on timberland by expanded species and tree size
CF05		Net volume of growing-stock trees on timberland by expanded species and diameter class
CF06	Table 19.	Net volume of growing-stock trees on timberland by forest-type and stand-size class
CF07		Net volume of growing-stock trees on timberland by forest-type and species
CF08		Net volume of growing-stock trees on timberland by forest-type and soil drainage class
CF09		Net volume of growing-stock trees on timberland by forest-type group and ownership class
CF10		Net volume of growing-stock trees on timberland by forest-type group and species
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CF13		Net volume of growing-stock trees on timberland by sawtimber/poletimber and softwoods/hardwoods
CF14	Table 22.	Net volume of growing-stock in the sawlog portion of sawtimber trees on timberland by species and diameter class
CF15	Table 17.	Net volume of all trees on timberland by class of timber and species group
CF16		Net volume of all trees on timberland by species and tree class
CF17	Table 18.	Net volume of all-live, growing-stock, and sawtimber trees on timberland by species group and ownership class
CF18		Net volume of all-live trees on timberland by type of tree and softwoods/hardwoods
CF19		Gross volume of all-live trees on timberland by species and diameter class
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CF21		Sound volume on timberland by species and tree class

GROWTH AND REMOVALS - available at State and Unit levels

GR01	Table 23.	Average annual net growth and average annual removals of growing-stock volume on timberland by species
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GR03	Table 24.	Average annual net growth and average annual removals of sawtimber volume on timberland by species
GR04	Table 27.	Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group
GR05	Table 25.	Average annual mortality of growing-stock and sawtimber volume on timberland by species
GR06	Table 28.	Average annual net change of growing-stock volume on timberland by species and component of change
GR07		Average annual net change of growing-stock volume on timberland by species and component of change (Tables number 35,43,51,59,67,75 by units)
GR08		Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species (Tables number 36,44,52,60,68,76 by units)

COUNTY LEVEL TABLES - available at the State level

Area

CT01	Table 77.	Net land area by county, geographic unit, and land class
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CT03	Table 79.	Area of timberland by county, geographic unit, and stand-size class
CT04	Table 80.	Area of timberland by county, geographic unit, and forest-type group
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Griffith, Douglas M.; DiGiovanni, Dawn; Witzel, Teresa L.; Wharton, Eric H. 1993. **Forest Statistics for Ohio, 1991**. Resour. Bull. NE-128. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 169 p.

A statistical report on the fourth forest inventory of Ohio conducted in 1988-90. Findings are displayed in tables containing estimates of forest area, number of trees, sawtimber volume, growing-stock volume, biomass, growth, and removals. Data are presented at three levels: state, geographic unit, and county.

Keywords: Forest inventory, area, volume, biomass.

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